PB85-183994

Nationwide Urban Runoff Program. Urban Runoff Control in Rapid City, South Dakota: Appendix A

Black Hills Council of Governments
Rapid City, SD

Prepared for

Environmental Protection Agency, Washington, DC

Sep 83

U.S. Department of Commerce
National Technical Information Service
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URBAN RUNOFF CONTROL IN RAPID CITY, SOUTH DAKOTA

APPENDIX A

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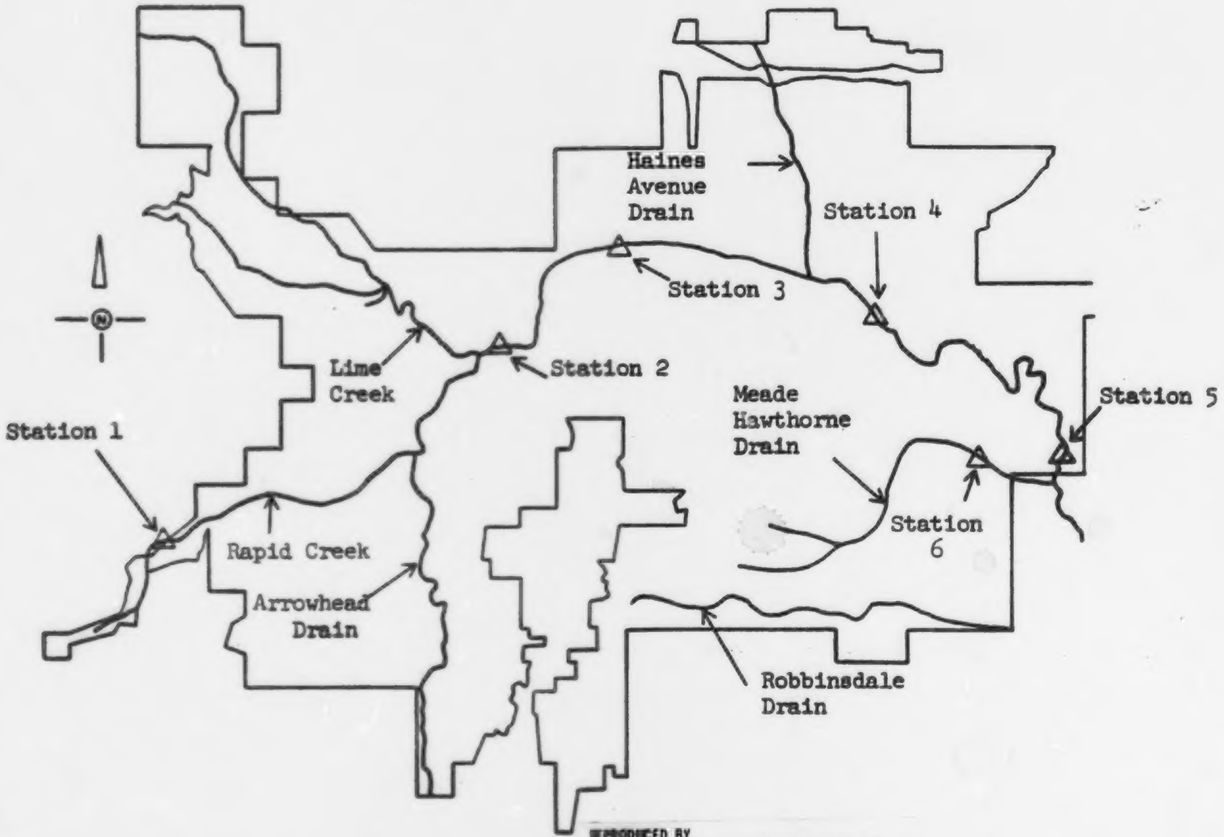

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SPRINGFIELD, VA. 22161

50272-101

REPORT DOCUMENTATION PAGE

1. REPORT NO.

2.

3. Recipient's Accession No. PB85 183994/AS

4. Title and Subtitle
Nationwide Urban Runoff Program, Urban Runoff Control in Rapid City, South Dakota, APPENDIX A.

5. Report Date
September, 1983

6.

7. Author(s)
Dr. Leland L. Harms, Ms. Marsha Smith, and Mr. Kim Goddard

8. Performing Organization Rept. No.

9. Performing Organization Name and Address
Sixth District Council of Local Governments
P.O. Box 1586
Rapid City, South Dakota 57709

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.
(C)
(G) P-008291010

12. Sponsoring Organization Name and Address
EPA, Office of Water Program Operations
Water Planning Division
401 M Street, SW
Washington, D C 20460

13. Type of Report & Period Covered
Final, 1978-1983

14.

15. Supplementary Notes The two Volume report, of which this is one volume, consists of a FINAL REPORT, and APPENDIX A. An EXECUTIVE SUMMARY was also prepared.

16. Abstract (Limit: 200 words)

This document includes a description and collation of data obtained during the investigation of precipitation runoff and it's effects on Rapid Creek in Rapid Creek South Dakota. Information on quality assurance/control is also included.

17. Document Analysis a. Descriptors

Hydrology
Urban development
Watersheds
Water pollution
Water resources
Sedimentation
Storms
Regional planning
Urban planning
Civil Engineering

b. Identifiers/Open-Ended Terms

Runoff
Streamflow
Stream pollution
Rainfall
Snowmelt
Soil Erosion
Water Quality
Sediments
Sediment Transport
Suspended Solids
Storm Drains
Urbanization
Land use

c. COSATI Field/Group

18. Availability Statement: No restriction on distribution. Available from National Technical Information Service, Springfield, VA 22161

19. Security Class (This Report)
UNCLASSIFIED

20. Security Class (This Page)
UNCLASSIFIED

21. No. of Pages
249

22. Price

ANSI–Z39.18)

See Instructions on Reverse

OPTIONAL FORM 272 (4–77)
(Formerly NTIS–35)
Department of Commerce

URBAN RUNOFF CONTROL IN
RAPID CITY, SOUTH DAKOTA

APPENDIX A

NOTICE

The enclosed document represents the Appendix to the South Dakota Nationwide Urban Runoff Program Project Final Report. This information will be included in a report to be issued independently by the U. S. Geological Survey (U. S. G. S.) following review and approval by the Director, U. S. G. S., at some future date. Until that evaluation has been accomplished, there can be no certainty that the information as presented will not be modified, and it should be used with caution. Users are advised to contact Kim Goddard, of the U. S. G. S., telephone (605) 342-6812, concerning review status, and any possible changes being made.

NOTICE

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401 M STREET, SOUTHWEST

WASHINGTON, D. C. 20460

DESCRIPTION AND COLLATION OF DATA OBTAINED DURING THE INVESTIGATION OF PRECIPITATION RUNOFF AND ITS EFFECTS ON RAPID CREEK IN RAPID CITY, SOUTH DAKOTA

U.S. GEOLOGICAL SURVEY

Water Resources Investigations Report 83-

NOTICE

The enclosed document is a provisional draft of the U. S. Geological Survey data report producted as part of the Rapid City Urban Runoff Project. It has been provided to the South Dakota School of Mines and Technology as support to the South Dakota School of Mines and Technology final project report, and for review and comment by all interested parties. The draft is not to be released to the general public pending review and approval by the Director, U. S. Geological Survey.

This data report is currently in the review and approval process common to all official publications of the U. S. Geological Survey. After approval, the report will be published in the Water Resources Investigation series of reports and copies will be supplied to all interested parties. A few extra copies will be available from U. S. Geological Survey offices in Huron and Rapid City, South Dakota, and from the South Dakota School of Mines and Technology and the Black Hills Council of Local Governments in Rapid City, South Dakota. In addition, copies may be purchased from the U. S. Geological Survey, Open-File Services Section, Western Distribution Branch, in Denver, Colorado.

NOTICE

Prepared in cooperation with the

SIXTH DISTRICT COUNCIL OF LOCAL GOVERNMENTS, and

SOUTH DAKOTA SCHOOL OF MINES AND TECHNOLOGY

DESCRIPTION AND COLLATION OF DATA OBTAINED DURING THE INVESTIGATION OF PRECIPITATION RUNOFF AND ITS EFFECTS ON RAPID CREEK IN RAPID CITY, SOUTH DAKOTA

By KIMBALL E. GODDARD and TERRY K. LOCKNER,
U.S. Geological Survey, and
LELAND L. HARMS and MARSHA H. SMITH,
South Dakota School of Mines and Technology

U.S. GEOLOGICAL SURVEY

Water Resources Investigations Report 83-

Prepared in cooperation with the
SIXTH DISTRICT COUNCIL OF LOCAL GOVERNMENTS, and
SOUTH DAKOTA SCHOOL OF MINES AND TECHNOLOGY

Rapid City, South Dakota
1983

UNITED STATES DEPARTMENT OF THE INTERIOR

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CO[illegible]N FACTORS

The following factors can [illegible] convert inch-pound units in this report to the International System [illegible] metric units.

Multiply inch-pound unit	By	To obtain metric unit
inch (in.)	25.40	millimeter (mm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
acre	0.4047	hectare
square mile (mi^2)	2.590	square kilometer (km^2)
acre-foot (acre-ft)	0.001233	cubic hectometer (hm^3)
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)

Temperature in degrees Fahrenheit (°F) can be converted to degrees Celsius (°C) as follows:

$$^{\circ}C = 5/9\ (^{\circ}F - 32)$$

DESCRIPTION AND COLLATION OF DATA OBTAINED DURING THE INVESTIGATION OF PRECIPITATION RUNOFF AND IT'S EFFECTS ON RAPID CREEK IN RAPID CITY, SOUTH DAKOTA

By Kimball E. Goddard and Terry K. Lockner,
U.S. Geological Survey, and
Leland L. Harms and Marsha H. Smith,
South Dakota School of Mines and Technology

ABSTRACT

The Rapid City Urban Runoff Project was one of 28 investigative projects that comprised the U.S. Environmental Protection Agency's Nationwide Urban Runoff Program (NURP). The objectives of the three-year project were to characterize the impacts of urban runoff on the water quality of Rapid Creek from rainfall and snowmelt runoff, and to evaluate the effects of the runoff on the existing high-quality, cold-water fishery. In order to meet these objectives, it was necessary to obtain detailed data on (1) the characteristics of the investigated watersheds, (2) climate and precipitation, (3) basin discharge, (4) water quality, and (5) atmospheric fallout. This report describes the rational behind the data-collection program, the methodology used to obtain the data, and presents the hydrologic data collected during the project.

The Rapid City Urban Runoff Project study area lies along the eastern flanks of the Black Hills in western South Dakota and includes the majority of the urbanized area of Rapid City. The overall study area was divided into five individual watersheds, four of these defined by the contributing drainage area between five successive streamflow-water quality monitoring stations on Rapid Creek, plus the watershed above an off-channel streamflow-water quality monitoring station. The investigated watersheds ranged in size from 1,610 to 20,990 acres.

The data-collection network established during the project included 10 recording and 40 non-recording rain gages, 6 streamflow-water quality monitoring stations, 3 miscellaneous streamflow stations, and 2 atmospheric deposition stations. Precipitation, discharge, and water-quality data are available for 33 precipitation runoff events that occurred between June 1980 and July 1982. Atmospheric deposition data on monthly and bi-monthly composited samples are available between May 1981 and August 1982.

INTRODUCTION

National Perspectives

Researchers investigating water pollution during the 1960's identified pollutants in urban runoff and concluded that there may be water-quality problems associated with storm water runoff. A conclusion common to all the early researchers, however, was that not enough was known about urban runoff to understand its chemical makeup or its impact upon receiving waters. In order to obtain information that would help resolve these uncertainties, the U.S. Environmental Protection Agency (US EPA) established the Nationwide Urban Runoff Program (NURP) in 1978. Some of the objectives of this five-year program are:

1. Acquire a uniform data base which can be statistically analyzed and can be transferred to other areas without the need for intensive data-gathering efforts.
2. Determine to what extent urban runoff is a contributor to water-quality problems across the nation.
3. Determine what effectiveness urban runoff controls have in reducing water-quality problems, and their cost effectiveness in comparison to alternate options.

NURP itself was a support function which provided direction and assitance to 28 separate and distinct projects which were managed locally by state, county, city, or regional governmental associations. Rapid City, South Dakota, was chosen for investigation due to its applicability to the national objectives, particularly objective number 2, as well as providing useful information at the local level.

General Description and Project Organization

The Rapid City Urban Runoff Project study area lies along the eastern flanks of the Black Hills in western South Dakota and includes the majority of the urbanized area of Rapid City (fig. 1). Rapid City, although by many standards a small town, is the largest urban area in western South Dakota and the hub of economic activity for a large area of South Dakota, Wyoming, Montana, and Nebraska. The 1980 census determined the population of Rapid City to be 46,492, although the population within the study area is somewhat greater as developed areas outside the city limits are contained within the study area.

Rapid Creek is a small perennial stream that flows eastward through Rapid City. A devastating flash-flood occurred along Rapid Creek in June 1972, which resulted in enormous property loss as well as 237 known deaths (Schwarz, F. K., and others, 1975). To prevent a recurrance of this type of disaster, the city of Rapid City developed the flood plain of Rapid Creek into parks and recreational areas. Rapid Creek itself is the central attraction of the park system and is a prime fishing stream as well as offering contact recreational activities during the warmer months. In addition, Rapid Creek is a source of domestic supply for several municipalities, including Rapid City, and for irrigation water.

Figure 1.—Location of Rapid City Urban Runoff Project study area.

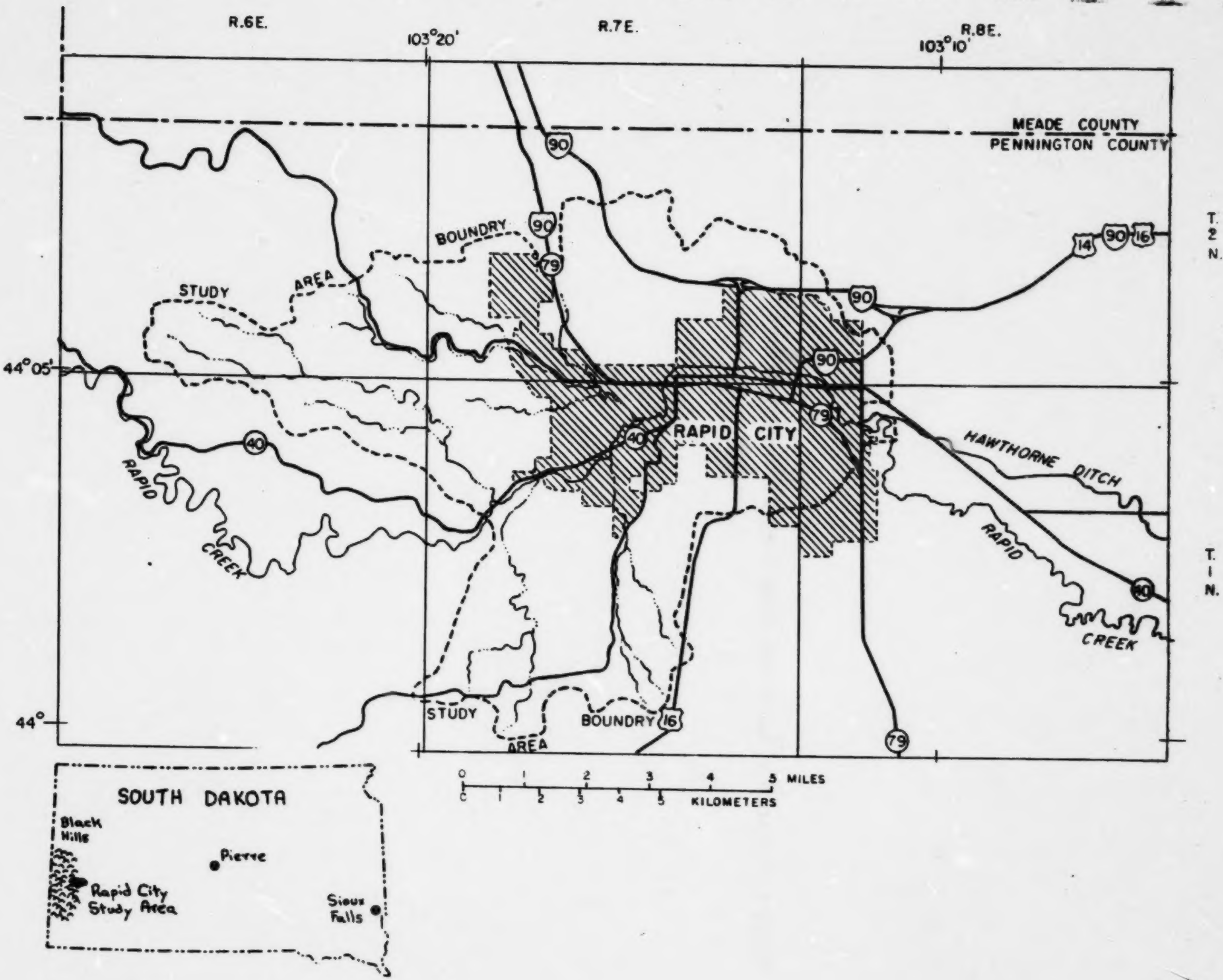

Figure 1.—Location of Rapid City Urban Runoff Project study area.

Water-quality investigations of Rapid Creek conducted by the South Dakota School of Mines and Technology (SDSM&T) and the Sixth District Council of Local Governments indicated urban runoff from the Rapid City area causes a water-pollution problem in Rapid Creek. During these studies, it was determined that the water quality in Rapid Creek in Rapid City meets the strict water-quality standards for a trout fishery during normal flow conditions, but these standards are violated during snowmelt and rainfall runoff events (Harms, L. L., 1980). However, the significance of the non-compliance was not clear. The recurrance interval and magnitude of urban-runoff pollution could not be determined within the time frame and budget of the earlier studies. The extent that urban runoff affected the trout fishery was undefined. In addition, it was not known if urban runoff contaminated Rapid Creek to the extent that it could not be used as a source of domestic and irrigation water.

To answer these questions, a three-year study of the effects of urban runoff on the hydrology of Rapid Creek in Rapid City was undertaken. The primary objectives of the project were to (1) characterize the impacts of urban runoff (rainfall and snowmelt runoff) on the water quality of Rapid Creek and (2) evaluate the effects of the runoff on a high-quality, cold-water fishery. The project would also allow an assessment of the value of in-stream water-quality standards as related to water quality during storm events, and would allow the impact of urban runoff on beneficial uses to be determined. The project was intended to provide information for proper fishery management of Rapid Creek and management options for the city of Rapid City if urban runoff controls become necessary.

In order to determine the impacts of urban runoff on the hydrology of Rapid Creek in Rapid City, it was necessary to begin with the collection of basic data. These data must allow quantification of the factors important in determining the quantity and quality of urban runoff. Data needs can be divided into five general categories: (1) Watershed characteristics, (2) meterological (climate and precipitation), (3) hydraulics (discharge), (4) water quality, and (5) atmospheric fallout.

This report describes the rational behind the data-collection program and the methodology used to obtain the basic data. Figures and tables, both in the body of the report and in the supplemental information section, present hydrologic data collected and tabulated during the investigation.

The Rapid City Urban Runoff Project was a cooperative effort involving local, state, and federal agencies. The primary organizations involved and their areas of repsonsibility were:

1. Sixth District Council of Local Governments: As the grant recipient, Sixth District had the overall fiscal responsibility, including documentation of match monies, agency coordination, advisory committee selection, and reporting functions.
2. South Dakota School of Mines and Technology: The Civil Engineering Department at SDSM&T was the primary technical contractor on the project. Their responsibilities included laboratory analysis of water samples, data analysis, quality assurance, and prepartion of quarterly, annual, and final reports for submission to U.S. EPA.
3. South Dakota Department of Water and Natural Resources (SD DWNR): SD DWNR collected data on the benthic fauna of Rapid Creek. This work, along with electrofishing by the South Dakota Department of Game, Fish, and Parks, was used to develop information regarding the fishery.
4. United States Geological Survey: The primary responsibility of the Geological Survey was to obtain field data on precipitation and streamflow and to collect water-quality samples. In addition, the Geological Survey provided data analysis and management services to the project and prepared final basic data and interpretative reports for national release.

Products

A project of the magnitude and organizational participation of the Rapid City Urban Runoff Project produced numerous documents and reports that presented the objectives and approach to the investigation, periodically described ongoing progress and problems, and presented the basic data collected during the investigation and the hydrologic interpretations of this data. The major reports and documents are:

> "Work plan for urban runoff control in Rapid City, South Dakota," by Dr. Leland L. Harms, South Dakota School of Mines and Technology, and Michael Strub, Sixth Distsrict Council of Local Governments, October 1980, 135 p.
>
> "Quality assurance project plan for the Rapid City urban runoff project," by Marsha Smith, South Dakota School of Mines and Technology, April 1981, 44 p.
>
> "Urban runoff control in Rapid City, South Dakota," by Dr. Leland L. Harms, South Dakota School of Mines and Technology, and Michael Strub, Sixth Distsrict Council of Local Governments, Ten quarterly reports covering the period July 1, 1980, to December 31, 1982.
>
> "Urban runoff control in Rapid City, South Dakota," by Dr. Leland L. Harms, South Dakota School of Mines and Technology, and Michael Strub, Sixth District Council of Local Governments, Annual reports for 1980 and 1981.
>
> "Progress to date and preliminary analysis of biological monitoring data from Rapid Creek," by the South Dakota Department of Water and Natural Resources, Office of Water Quality, and South Dakota Department of Game, Fish, and Parks, February 1982, 20 p.

"Water quality effects of urban stormwater runoff on a portion of Rapid Creek," by Gregory L. Magee, Master of Science Thesis, South Dakota School of Mines and Technology, 1981, 212 p.

"Quality changes in urban stormwater runoff detained in a flood mitigation dam in Rapid City, South Dakota," by Gary Robert Gabe, Master of Science Thesis, South Dakota School of Mines and Technology, 1982, 74 p.

"Analysis of urban runoff from the Meade Street Drainage Basin," by Craig L. Nowak, Master of Science Thesis, South Dakota School of Mines and Technology, 1982, 98 p.

"Biological sampling related to the Rapid City Urban Runoff Project, Rapid City, South Dakota," by Ronald N. Koth, Office of Water Quality, South Dakota Department of Water and Natural Resources, 1983, in preparation.

"Description and collation of data obtained during the investigation of precipitation runoff and its effects on Rapid Creek in Rapid City, South Dakota," by Kimball E. Goddard and Terry K. Lockner, U.S. Geological Survey, and Dr. Leland L. Harms and Marsha Smith, South Dakota School of Mines and Technology, U.S. Geological Survey Water-Resources Investigation Report (this report).

"Investigation of precipitation runoff and its effects on Rapid Creek in Rapid City, South Dakota," by Kimball E. Goddard, U.S. Geological Survey, and Dr. Leland L. Harms, South Dakota School of Mines and Technology, U.S. Geological Survey Water-Resources Investigations Report, in preparation.

"Urban runoff control in Rapid City, South Dakota," by Dr. Leland L. Harms, South Dakota School of Mines and Technology, and Kimball E. Goddard, U.S. Geological Survey, in prepartion.

Acknowledgments

The Rapid City Urban Runoff Project was truly a team effort which required the participation of a great many people. Special appreciation is given to Michael Strub of the Sixth District Council of Local Governments for his contribution to the administration of the study. The cooperation of William R. Craig and Jerry D. Foster of the city of Rapid City prevented unnecessary delays during the construction phase of the project and is gratefully acknowledged. James Nelson and Steven Pirner of the South Dakota Department of Water and Natural Resources provided expertise to the project and their efforts are acknowledged.

Technical advice and support was given by Patrice M. Bubar, Bruce Zander, Dennis N. Athayde, Stuart S. Tuller, and Roger Dean of the U.S. Environmental Protection Agency; Earnest Cobb of the Geological Survey, Gail B. Boyd of Woodward-Clyde, and Dr. Phillip E. Shelley of EG & G. Their contribution to the molding of this project is acknowledged.

The success of the project was largely the result of a close working relationship between the Geological Survey personnel and the South Dakota School of Mines and Technology technical team headed by Dr. Leland L. Harms. Dr. Harms provided conscientious leadership during the sometimes long and arduous data-collection efforts. Many people labored long and often unusual hours in the laboratory during the tenure of this work. They include Gary R. Gabe, Gregory L. Magee, Craig L. Nowak, Glen Singleton, Tim McDougall, Maria Wallace Kidner, Eric Staab, Ginger Dungey, and Marsha H. Smith. In particular, the professional attitude and dedication to the project by Marsha Smith, the project's quality assurance coordinator, produced the reliable data presented in this report.

WATERSHED DATA

The Rapid City Urban Runoff Project study area is defined by the contributing drainage area between the streamflow-monitoring stations, Rapid Creek above Canyon Lake near Rapid City and Rapid Creek below Hawthorne Ditch, plus the drainage area above the streamflow-monitoring station, Meade Street Drain. For the purposes of this investigation, the study was divided into five individual watersheds, each being defined by the contributing drainage area between the five successive streamflow-monitoring stations on Rapid Creek, plus the watershed above the streamflow-monitoring station, Meade Street Drain. The locations of the six streamflow-monitoring stations and the five individual watersheds are shown on plate 1.

The amount and quality of runoff from a particular urban watershed is strongly dependent on the physiographic and land-use characteristics of that watershed. For example, the amount and quality of runoff from a paved shopping center parking lot is quite different than that from a maintained city park. Nearly all the precipitation falling on the impervious parking lot would be discharged as runoff and would contain constituents resulting from tire wear, auto exhaust and lubricants, asphalt decomposition, etc. The grass-covered, pervious park would result in comparatively little runoff and such runoff would contain constituents such as fertilizer, weed killers, leaf detritus, etc. Because of this strong cause-effect relationship between land use and runoff characteristics, a detailed description of each watershed under investigation was recommended by NURP.

The list of land-use characteristics recommended by NURP was very detailed and included such categories as lane length, composition and condition of the road surfaces, length and type of gutters, pH of the soil-water interface, types and amounts of annual fertilizer application, etc. These recommendations were based on the results of studies which showed that storm runoff loads of specific constituents could be estimated by statistical procedures relating loads to watershed characteristics. In general, watersheds for which these relations could be developed were relatively small, with areas up to several hundred acres, and were predominantly of a single land-use category. In comparison, the watersheds under investigation in Rapid City are huge, with areas from about 1,500 to 21,000 acres, have very complex land-use patterns, and drain to Rapid Creek via numerous drainage paths. It would have been inordinately difficult (if not impossible) to make accurate determinations of many of the suggested characteristics over the large watersheds under investigation. In addition, it is unlikely that these characteristics could be quantitively correlated against either the amount or quality of precipitation runoff.

The characterization of watersheds under investigation during the Rapid City Urban Runoff Project was on a relatively broad scale. Twelve different categories of land cover and land use were delineated over the study area and the areas are shown on plate 2. This map was developed by the Geological Survey from aerial photographs taken in 1978, from topographic maps, and from ground inspection. Many assumptions and estimations had to be made during the categorizing of such a large and complex area. The distributions shown on plate 2 represent only the predominant land use within a delineated area. Individual buildings, small groups of buildings, and small areas, located within large areas of some other category, were not delineated. Other than the broad rural residential-residential breakdown, no attempt was made to estimate housing density. Light industry was categorized as commercial when these land-use types were interspered. Table 1 was developed from plate 2 and lists the percentage of watershed within each category for each of the five watersheds in the study area.

Table 1.—Land cover and land use categories by percentage of watershed area for the five watersheds within the Rapid City Urban Runoff Project study area and for the overall study area

	Watershed name					
	West Rapid	Deadwood Avenue	Central Business District	East Rapid	Robbins-dale	Rapid City study area
Total area (acres)	20,990	3,870	3,650	1,610	2,030	32,150
	Land use in percent of total area					
Urban areas						
Rural residential	9	0	4	1	1	7
Residential	8	2	32	19	47	12
Commerical	0	13	13	26	6	5
Industrial	0	5	0	0	0	1
Institutional	2	2	4	10	5	3
Parks	2	3	6	0	2	3
Vacant	1	3	9	25	5	4
Barren or disturbed	0	12	0	0	0	1
Non-urban areas						
Forest	39	7	6	0	5	27
Grassland	39	43	26	16	29	36
Water	0	0	0	0	0	0
Agriculture	0	10	0	3	0	1

METEOROLOGICAL DATA

Climate of Study Area

Rapid City, which is not far from the geographical center of North America, has a semiarid, temperate continental climate. Locally, the eastward slope of the Black Hills, and the more general eastward slope off the Western Cordillera somewhat modify the continental climate. On a global scale, the climatic belt that runs along the eastward sloping areas of central North America, and includes locations such as Denver, Colorado; Cheyenne, Wyoming; and Billings, Montana, as well as Rapid City, is referred to as middle latitude steppe (Hensen, W. R., and others, 1978).

The Rapid City area experiences the extreme temperature fluctuations, both daily and seasonally, that are typical of continental climates. Mid-continent high pressure results in southwest winds during the summer months with resultant daily high temperatures near or above 90°F. During the winter months, southward movement of polar air across the mid-continent can result in rapid temperature fluctuations, drops of from 20°F to 40°F in several hours are not uncommon, and yearly lows in the range of -20°F to -30°F are typical. However, the mean temperature at Rapid City during the winter months is nearly the warmest in South Dakota due to the orographic effects of the Black Hills and stratification of the polar air masses. Spring and fall are characterized by unsettled conditions, and wide variations in temperature are common (NOAA, 1976).

The distribution of precipitation over the year is characteristically uneven with a distinct "rainy season" during the late spring and early summer months. Figure 2 shows the average monthly precipitation measured at the two National Oceanic and Atmospheric Administration (NOAA) weather stations in and near Rapid City. Over 60% of the annual precipitation occurs from April through July.

The majority of the annual precipitation at Rapid City occurs as the result of convective storms. Beginning in May and occurring throughout the summer and early fall, nearly all the precipitation occurs as moderate to strong thunderstorms. These storms are often accompanied by strong winds, and hail and the resultant rainfall is heavy but of short duration. The areal distribution of rainfall from thunderstorms is very uneven, with large differences in total rainfall occurring over short distances.

Although convective storms produce the majority of precipitation, Rapid City also experiences an occasional orographic storm common to the eastward slope of the Rocky Mountain region. A particular arrangement of high and low pressure over the central United States will result in moist air being forced westward up slope. These upslope storms result in precipitation patterns that are often very dependent upon elevation with the higher amounts generally at higher elevations. Specific to the Rapid City study area, easterly airflow during upslope conditions causes significantly more precipitation to fall along the eastern front of the Black Hills that occurs several miles to the east on the plains. The uneven, but elevation dependent, distribution of precipitation during upslope storms is largely responsible for the difference in precipitation measured at the two NOAA weather stations (fig. 2).

Figure 2.—Mean monthly precipitation at the two National Oceanic and Atmospheric Administration (NOAA) weather stations, Rapid City and Rapid City WAO AP for the period of record.

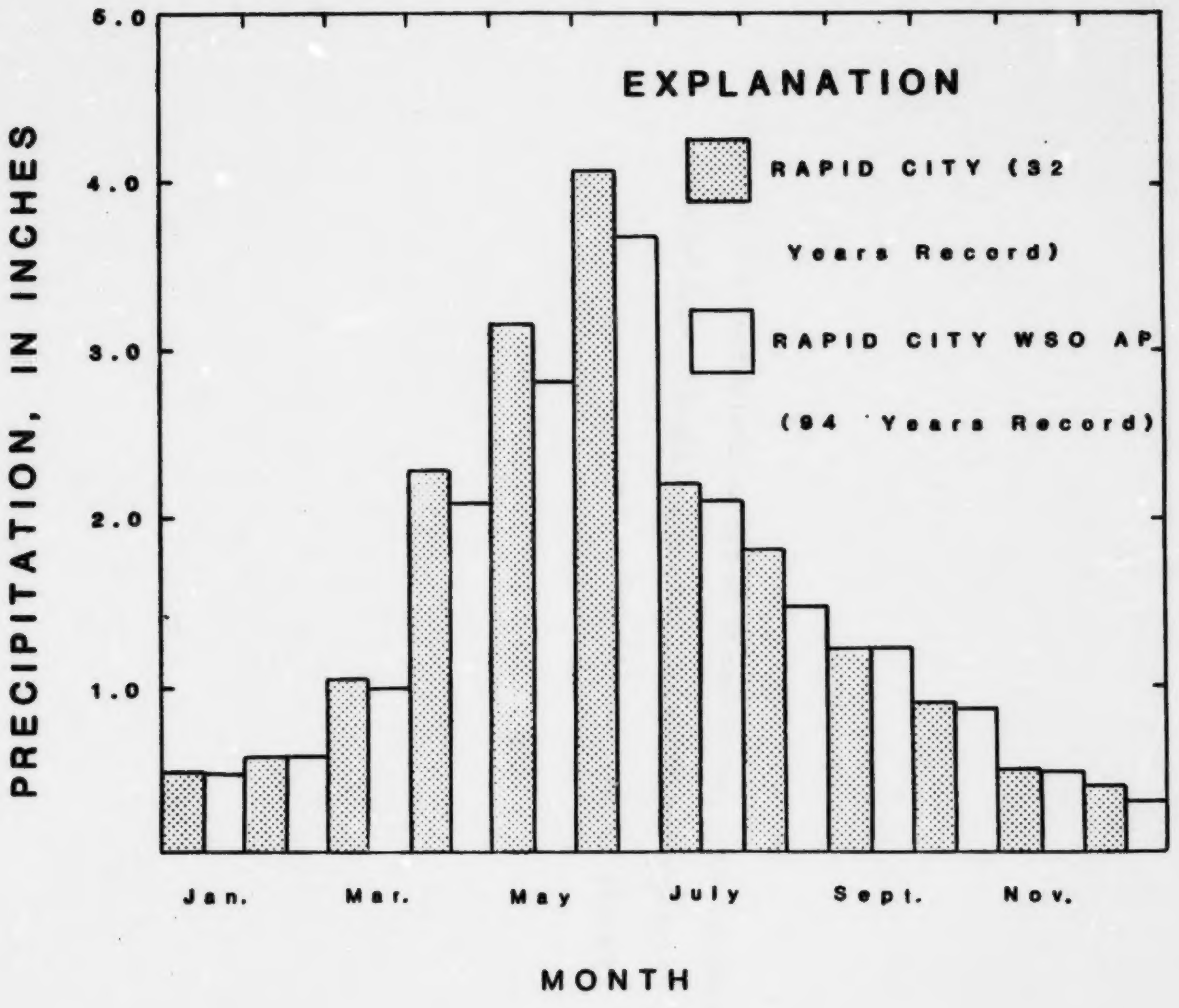

Figure 2.—Mean monthly precipitation at the two National Oceanic and Atmospheric Administration (NOAA) weather stations, Rapid City and Rapid City WAO AP for the period of record.

Statistical Characterization of Long-Term Data

The statistical characterization of long-term precipitation data is necessary for the determination of annual runoff volumes and the assessment of the effects of annual storm loading on water quality. The highly variably nature of precipitation in any one year, or even over a period of several years, necessitates that precipitation data be available over a period of at least 10 years to provide confidence in the characterization.

Precipitation data are collected at National Oceanic and Atmospheric Administration (NOAA) weather stations throughout the country and records of this data are available through NOAA's National Climatic Center in Asheville, N.C. The length of available record varies based on the date on which the station was established. The interval at which data are collected also varies from 5-minutes at some larger metropolitan stations to daily at many rural sites. However, most NOAA weather station records are tabulated on an hourly basis.

Two NOAA stations are located in or near Rapid City. The first, Rapid City (396947-05), is located on the grounds of the Sioux Sanitarium in the western section of Rapid City and is shown on plate 1. The second, Rapid City WSO AP (396937-05), is located at the Rapid City Regional Airport about 7 miles east-southeast of Rapid City. Located within the study area, the NOAA station in western Rapid City would be the logical choice for the evaluation of long-term precipitation data. However, hourly data are unavailable from this site so the precipitation records from the station, Rapid City WSO AP, were used for the statistical characterization.

A data analysis program developed by and available through the Statistical Climatology Branch of NOAA was used to summarize and characterize the hourly precipitation record. The program, Frequency of Tabulations of Hourly Precipitation Data (TDF 1440), provides frequency distributions of continuous precipitation episodes (storm events) and monthly tabulations of hours and amounts of precipitation. The program delineates storm events as periods of at least one hour of precipitation separated by at least one hour with no recorded precipitation. Only the months in which precipitation normally falls as rain in South Dakota, April through September, were used in the analysis. Snowfall was excluded from the analysis because of the unreliability of snowfall data. Also, periods and amounts of snowfall do not directly correspond to periods and amounts of snowmelt and so are not useful in the analysis of urban runoff.

Figures 3 through 7 present the output of the statistical-characterization program. Figures 3 and 4 are probability distributions of rainfall duration and amount. The individual months shown on these figures were chosen for illustrative purposes. Distribution curves for the other months fall within the envelope described by these curves. Figure 5 presents average rainfall durations, amounts, and intensities for storm events. Figures 6 and 7 are summaries of monthly properties and show the maximum, minimum, and mean duration and amount of rainfall over the period 1948-1978.

Figure 3.—Probability distribution for the duration of precipitation events, for the individual months, April and August, and the overall mean for the months, April through September, measured at the NOAA weather station, Rapid City WAO AP for the years 1948-1978.

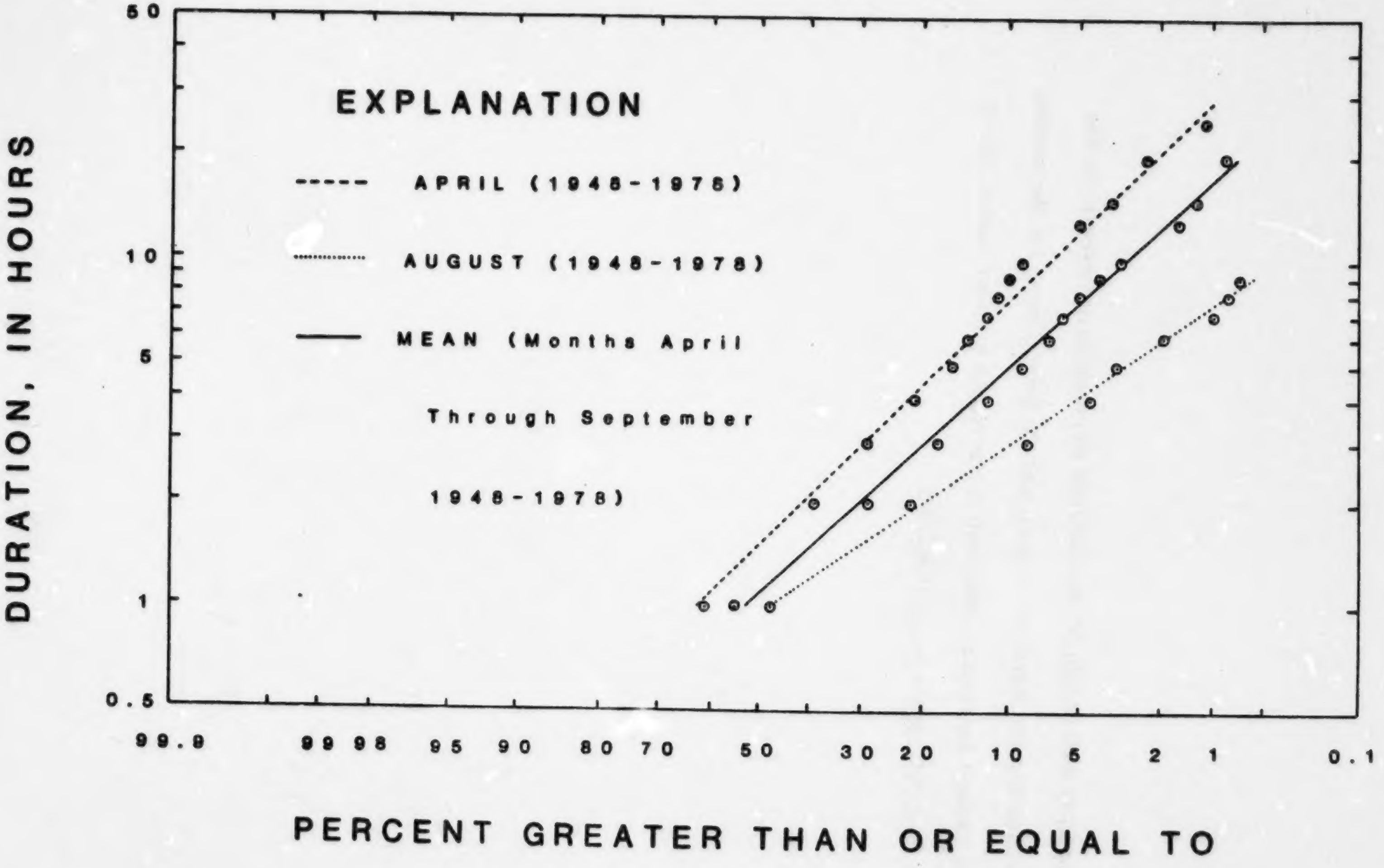

Figure 3.—Probability distribution for the duration of precipitation events, for the individual months, April and August, and the overall mean for the months, April through September, measured at the NOAA weather station, Rapid City WSO AP for the years 1948-1978.

Figure 4.—Probability distribution for the amount of precipitation during events, for the individual months, June and September, and the overall mean for the months, April through September, measured at the NOAA weather station, Rapid City WAO AP for the years 1948-1978.

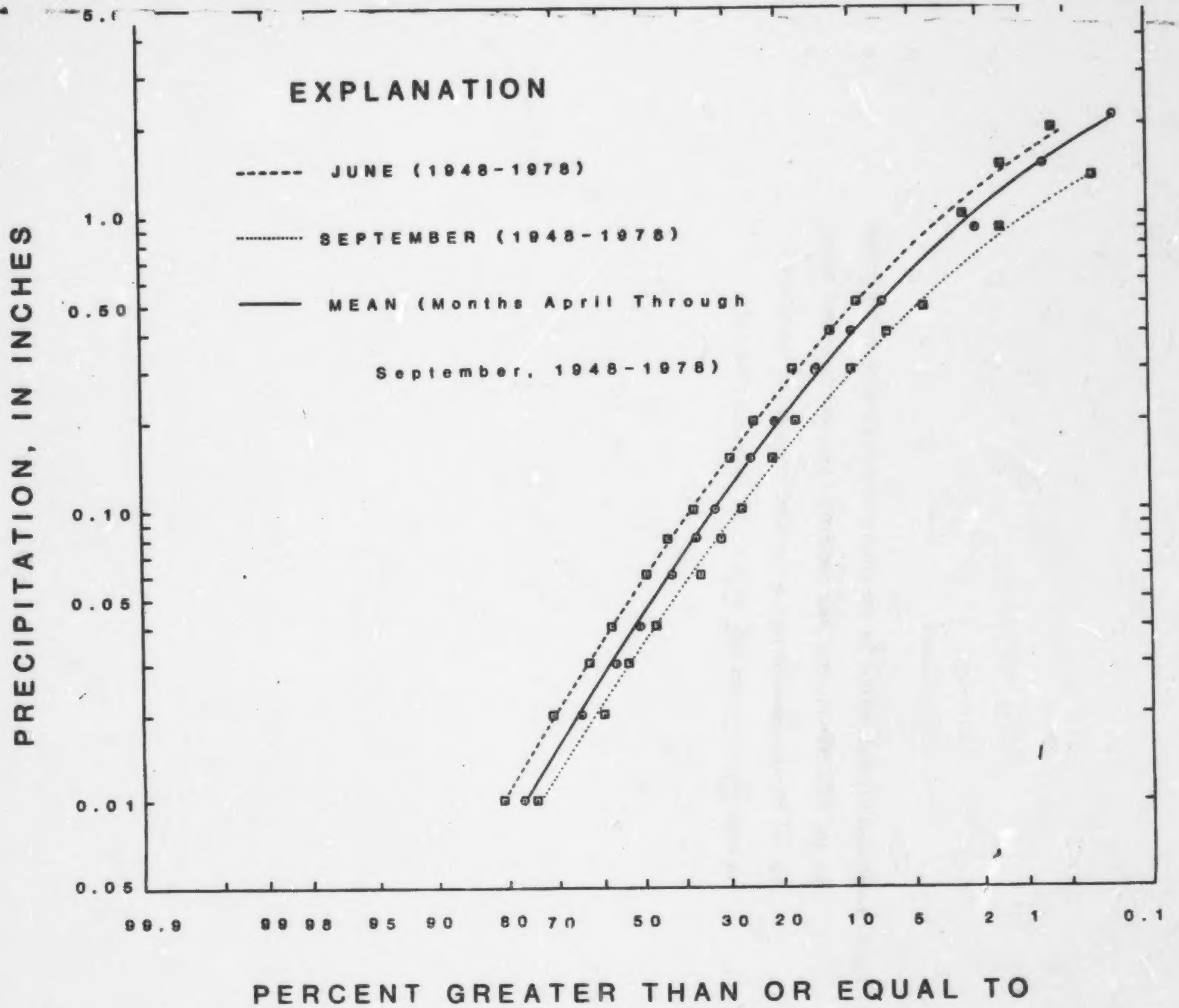

Figure 4.--Probability distribution for the amount of precipitation during events, for the individual months, June and September, and the overall mean for the months, April through September, measured at the NOAA weather station, Rapid City WAO AP for the years 1948-1978.

Figure 5.—Duration, amount, and intensity of precipitation events, averaged by month for the months, April through September, and overall mean for these months, measured at the NOAA weather station, Rapid City WAO AP for the years 1948-1978.

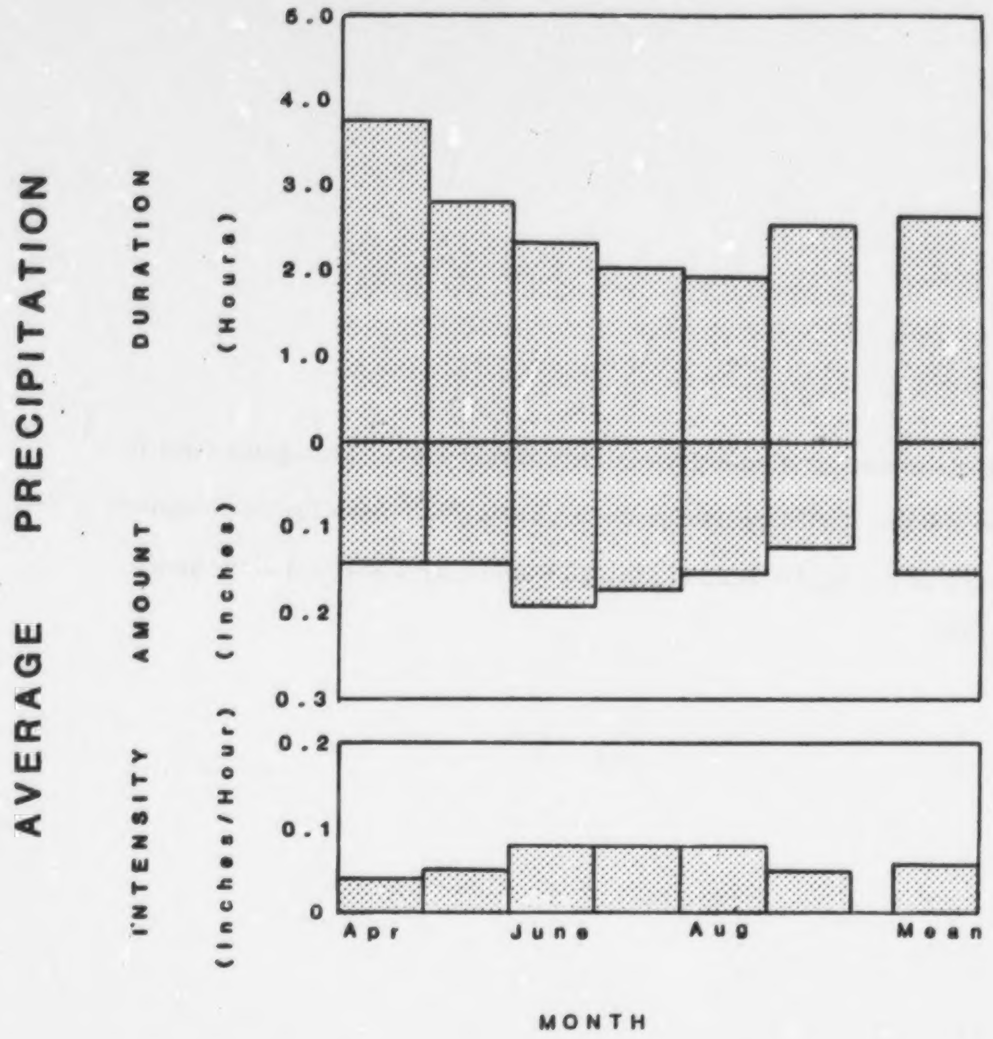

Figure 5.—Duration, amount, and intensity of precipitation events, averaged by month for the months, April through September, and overall mean for these months, measured at the NOAA weather station, Rapid City WAO AP for the years 1948-1978.

Figure 6.—Maximum, minimum, and mean number of hours with recorded precipitation within a month for the months, April through September, and overall mean for these months, measured at the NOAA weather station, Rapid City WAO AP for the years 1948-1978.

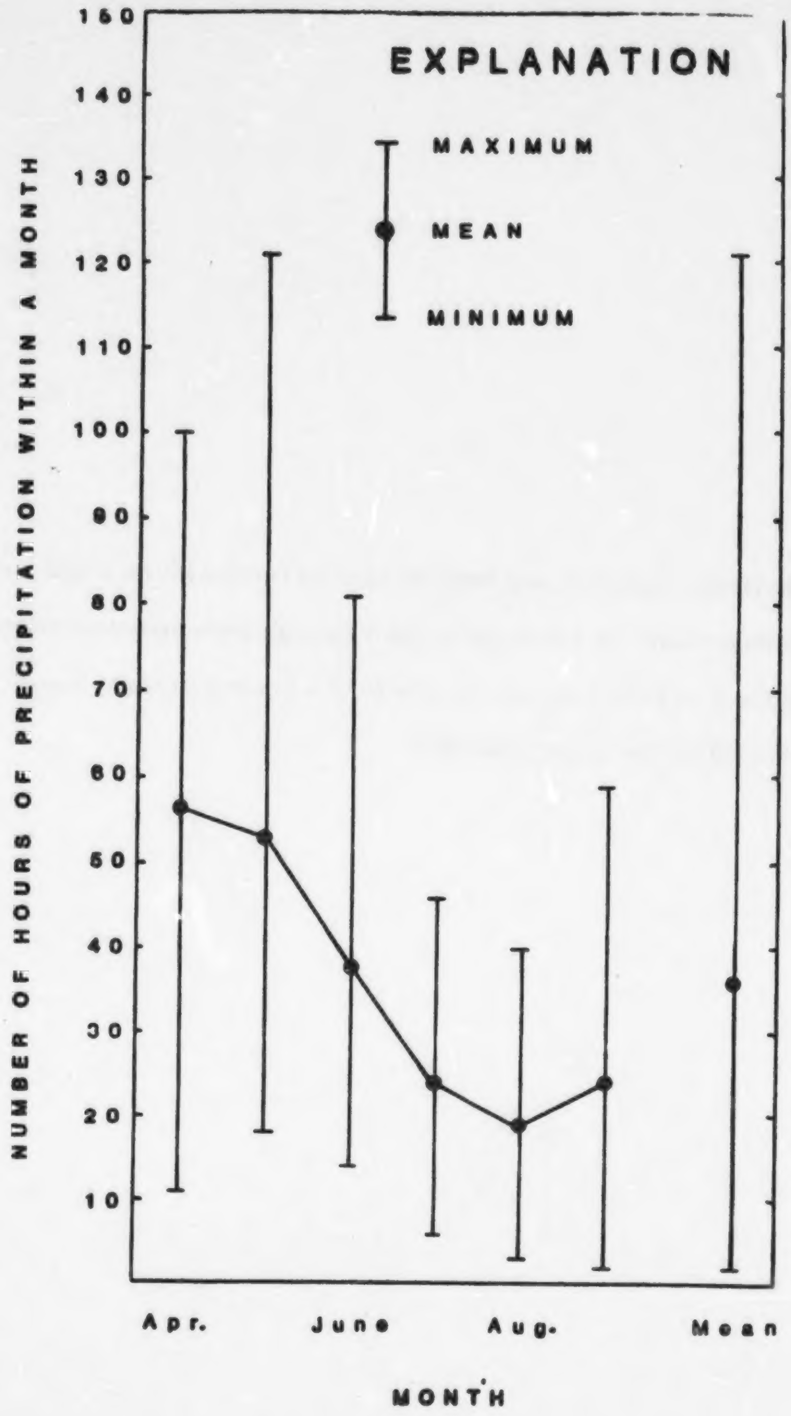

Figure 6.—Maximum, minimum, and mean number of hours with recorded precipitation within a month for the months, April through September, and overall mean for these months, measured at the NOAA weather station, Rapid City WAO AP for the years 1948-1978.

Figure 7.—Maximum, minimum, and mean precipitation by month, for the months, April through September, and overall mean for these months, measured at the NOAA station, Rapid City WAO AP for the years 1948-1978.

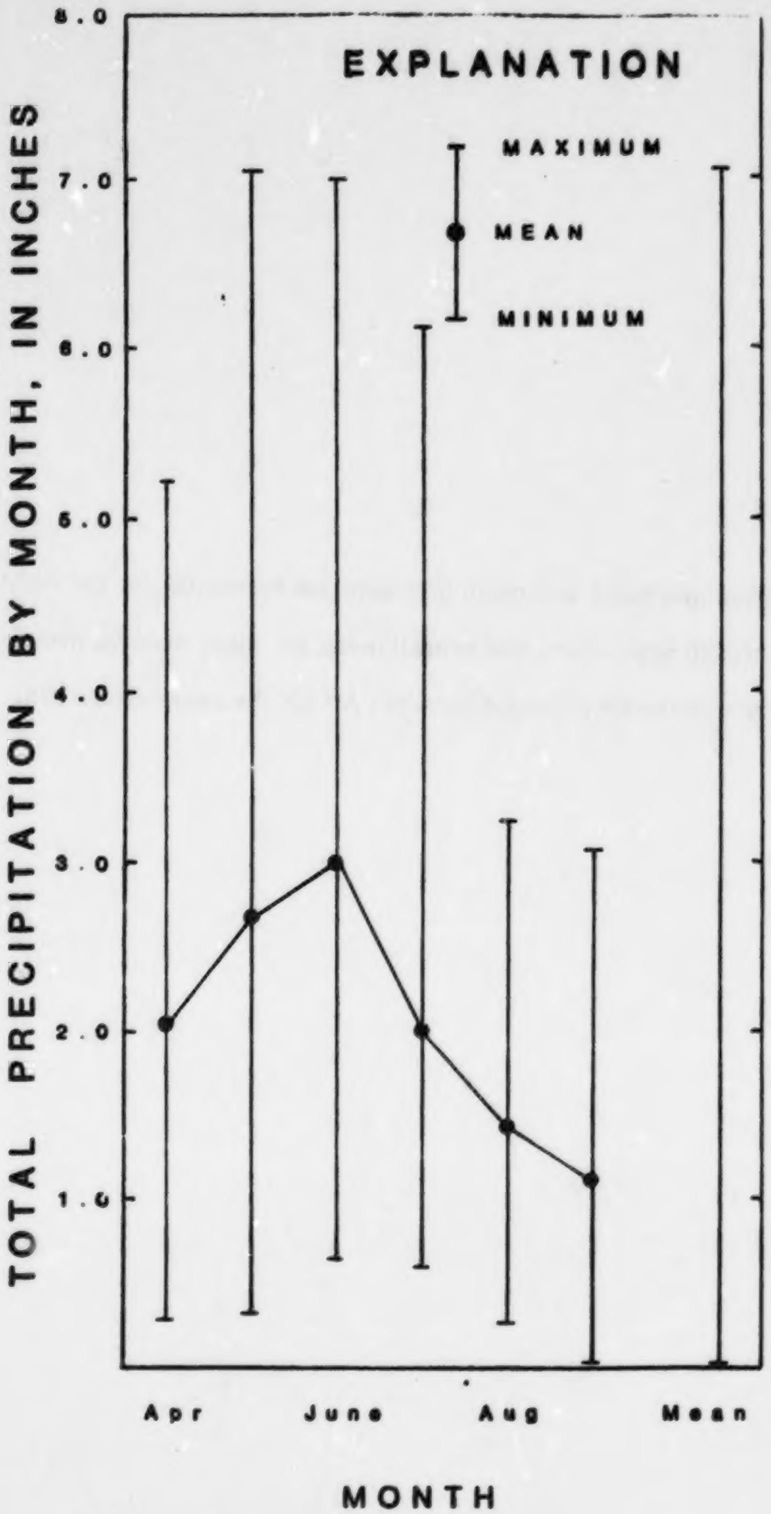

Figure 7.—Maximum, minimum, and mean precipitation by month, for the months, April through September, and overall mean for these months, measured at the NOAA station, Rapid City WAO AP for the years 1948-1978.

Precipitation Characteristics of Investigated Runoff Events

Because of its integral relationship with urban runoff quantity and quality, the accurate determination of the areal distribution of storm properties (duration, amount, and intensity) for investigated events is an important aspect of the Rapid City urban runoff study. In order to obtain sufficient precipitation data, networks of both non-recording and recording rain gages were established in Rapid City.

The non-recording rain-gage network consisted of about 40 wedge type rain gages (Tru-Chek Model TRU-201, Edwards Manufacturing Company)[1/]. These gages were read and emptied daily by volunteer observers who lived at or near the gage site. The data were recorded on a monthly tabulation sheet provided to the observer.

The non-recording rain gages were located throughout Rapid City and the surrounding area. Locations were chosen and the gages were installed so as to minimize problems caused by obstructions.

Rainfall data obtained by the non-recording network was not as useful as originally anticipated. Data were tabulated on a daily basis with the recording interval varying based on the habits of the individual recorder. Daily rainfalls could not always be correlated with storm-event rainfall because of interfering periods of rainfall occurring within (before or after) 24 hours of the major event. Data obtained by the non-recording rain-gage network were used only as supplemental information and is not presented in this report since the integrity of the data could not be assured. However, data from the non-recording network were used to estimate rainfall amounts if more accurate data was unavailable due to recording rain-gage malfunction.

[1/] Use of brand and firm names in this report is for identification purposes only and does not constitute endorsement by the U.S. Geological Survey.

The recording rain-gage network consisted of 10 tipping bucket type rain gages (Weather Measure Model P501-I Remote Recording Rain Gage). Each tip of a bucket mechanism is calibrated to occur after 0.01 inch of rainfall. The tipping action causes a momentary closure of a mercury switch located beneath the bucket mechanism. This switch, when connected to a recorder, enables counting of each tip of the bucket and therefore the amount of rainfall. Recording the number of contact closures per time interval allows determination of rainfall intensity. A time interval of five minutes was used for the recording of precipitation data.

The locations of the 10 recording rain gages are shown on plate 1 and the site numbers, names, and Geological Survey site identification numbers are listed in table 2. The recording rain gages were located so that effects of nearby obstructions were minimized. Wind screens were installed to protect the gages from the effects of strong winds.

Table 3 lists the raw data obtained from the recording rain-gage network for the investigated runoff events. No recording rain-gage data is available for the events which occurred during 1980 because the gages were not received until after the sampling season. Recording rain-gage data is also not available for the three sampled snowmelt events (event numbers 23-25) and for the two events used for automatic sampler calibration (event numbers 27-30). Missing data for individual sites was caused by recorder malfunction, or, in one isntance, by storm damage to the rain gage. Data for the missing records were estimated based on measurements at nearby non-recording rain gages.

Table 2.—Name, site number, and U.S. Geological Survey site identification number for recording rain gages operated by the U.S. Geological Survey in Rapid City, South Dakota, April 1981-October 1981, and April 1982-July 1982

Site number	Site name	U.S. Geological Survey site identification number
1	Rapid Creek above Canyon Lake	440304103184701
2	South Canyon School	440503103170301
3	Sioux Park above Water Treatment Plant	440427103153401
4	Arrowhead Country Club	440315103160001
5	Rapid Creek at Rapid City	440509103143101
6	North Rapid Fire Station	440549103124001
7	South Dakota School of Mines & Technology	440430103122001
8	Eighth Street at Highland Park Drive	440339103140201
9	Robbinsdale School	440343103122701
10	East Rapid at Lombardy Park	440345103105701

Table 3.—Total rainfall amount, starting and ending date and time, and maximum 5-minute amount from recording rain gage sites for sampled runoff events, April 1981-July 1982, Rapid City, South Dakota

Runoff event number	Rain gage site number	Total rainfall (inches)	Rainfall start		Rainfall end		Maximum 5-minute amount (inches)
			Date	Time	Date	Time	
8	1	0.08	04-03-81	0515	04-03-81	0900	0.01
	2	.11	04-03-81	0145	04-03-81	0820	.02
	3	.07	04-03-81	0130	04-03-81	0705	.01
	4	.09	04-03-81	0315	04-03-81	1610	.01
	5	.07	04-03-81	0315	04-03-81	0850	.01
	6	.03	04-03-81	0225	04-03-81	0555	.01
	7	.05	04-03-81	0310	04-03-81	0800	.01
	8	.05	04-03-81	0520	04-03-81	0745	.01
	9	.06	04-03-81	0255	04-03-81	0755	.01
	10	0	--	--	--	--	--
9	1	.19	04-21-81	1510	04-21-81	1605	.03
	2	.13	04-21-81	1510	04-21-81	1600	.02
	3	.12	04-21-81	1510	04-21-81	1920	.02
	4	.21	04-21-81	1545	04-21-81	1635	.03
	5	.15	04-21-81	1525	04-21-81	1840	.02
	6	.13	04-21-81	1500	04-21-81	2000	.02
	7	.16	04-21-81	1535	04-21-81	1645	.02
	8	.17	04-21-81	1540	04-21-81	1630	.03
	9	.19	04-21-81	1520	04-21-81	1640	.02
	10	.18	04-21-81	1520	04-21-81	1640	.02
10	1	E .20	--	--	--	--	--
	2	.31	05-02-81	1630	05-02-81	1900	.11
	3	.33	05-02-81	1630	05-02-81	1855	.14
	4	.18	05-02-81	1630	05-02-81	1920	.02
	5	.39	05-02-81	1705	05-02-81	1900	.16
	6	E .42	--	--	--	--	--
	7	.30	05-02-81	1635	05-02-81	1850	.12
	8	.31	05-02-81	1710	05-02-81	2015	.08
	9	.36	05-02-81	1710	05-02-81	1945	.13
	10	.30	05-02-81	1710	05-02-81	1930	.14
11	1	E .45	--	--	--	--	--
	2	.32	05-06-81	0650	05-06-81	2330	.02
	3	.29	05-06-81	0640	05-06-81	2400	.01
	4	.30	05-06-81	0645	05-06-81	2310	.01
	5	.28	05-06-81	0710	05-07-81	0010	.01
	6	E .29	--	--	--	--	--
	7	.36	05-06-81	0610	05-06-81	2400	.01
	8	.17	05-06-81	1435	05-07-81	0045	.01
	9	.17	05-06-81	1435	05-07-81	0010	.01
	10	.17	05-06-81	1435	05-07-81	0010	.01

Table 3.--Total rainfall amount, starting and ending date and time, and maximum 5-minute amount from recording rain gage sites for sampled runoff events, April 1981-July 1982, Rapid City, South Dakota--Continued

Runoff event number	Rain gage site number	Total rainfall (inches)	Rainfall start		Rainfall end		Maximum 5-minute amount (inches)
			Date	Time	Date	Time	
12	1	E 0.24	--	--	--	--	--
	2	.21	05-07-81	0650	05-07-81	0840	0.02
	3	.18	05-07-81	0655	05-07-81	0850	.02
	4	.16	05-07-81	0705	05-07-81	0850	.02
	5	.19	05-07-81	0725	05-07-81	0920	.01
	6	E .18	--	--	--	--	--
	7	.17	05-07-81	0700	05-07-81	0900	.02
	8	.20	05-07-81	0725	05-07-81	0940	.01
	9	.18	05-07-81	0745	05-07-81	0935	.01
	10	.19	05-07-81	0735	05-07-81	0940	.01
13	1	.25	05-12-81	2235	05-13-81	0755	.02
	2	.20	05-12-81	2145	05-13-81	0745	.02
	3	.20	05-12-81	2140	05-13-81	0640	.01
	4	.21	05-12-81	2215	05-13-81	0905	.02
	5	.22	05-12-81	2235	05-13-81	0805	.01
	6	E .34	--	--	--	--	--
	7	.25	05-12-81	2145	05-13-81	0540	.02
	8	.22	05-12-81	2225	05-13-81	0620	.02
	9	.25	05-12-81	2225	05-13-81	0730	.02
	10	.17	05-12-81	2220	05-13-81	0330	.02
14	1	3.54	05-15-81	2230	05-17-81	2315	.06
	2	3.20	05-15-81	2210	05-17-81	2355	.03
	3	2.87	05-16-81	0405	05-17-81	2240	.03
	4	3.04	05-15-81	2220	05-17-81	2250	.03
	5	2.53	05-16-81	0020	05-17-81	2320	.03
	6	E 1.88	--	--	--	--	--
	7	1.91	05-16-81	0025	05-17-81	2225	.03
	8	2.35	05-15-81	2305	05-17-81	2300	.03
	9	2.07	05-16-81	0020	05-17-81	2305	.02
	10	1.64	05-16-81	0130	05-17-81	2255	.02
15	1	.77	05-22-81	1540	05-23-81	0930	.04
	2	.77	05-22-81	1505	05-23-81	0905	.05
	3	.66	05-22-81	1515	05-23-81	1045	.04
	4	.64	05-22-81	1530	05-23-81	0945	.03
	5	.73	05-22-81	1530	05-23-81	0950	.03
	6	E .56	--	--	--	--	--
	7	.52	05-22-81	0925	05-23-81	0850	.02
	8	.62	05-22-81	1320	05-23-81	0930	.04
	9	.57	05-22-81	1010	05-23-81	0930	.03
	10	.54	05-22-81	0955	05-23-81	0935	.03

Table 3.—Total rainfall amount, starting and ending date and time, and maximum 5-minute amount from recording rain gage sites for sampled runoff events, April 1981-July 1982, Rapid City, South Dakota--Continued

Runoff event number	Rain gage site number	Total rainfall (inches)	Rainfall start		Rainfall end		Maximum 5-minute amount (inches)
			Date	Time	Date	Time	
16	1	0.02	06-03-81	1950	06-03-81	2330	0.01
	2	.08	06-03-81	1840	06-03-81	1925	.04
	3	.14	06-03-81	1840	06-03-81	2035	.06
	4	.13	06-03-81	1850	06-03-81	1920	.10
	5	E .29	—	—	—	—	—
	6	.37	06-03-81	1840	06-03-81	1955	.10
	7	.36	06-03-81	1830	06-03-81	2030	.09
	8	.21	06-03-81	1905	06-03-81	2055	.09
	9	.39	06-03-81	1900	06-03-81	2040	.11
	10	.11	06-03-81	1910	06-03-81	2050	.04
17	1	.44	07-01-81	2220	07-01-81	2300	.12
	2	.44	07-01-81	2150	07-01-81	2235	.09
	3	.37	07-01-81	2155	07-01-81	2240	.09
	4	.38	07-01-81	2205	07-01-81	2240	.15
	5	.24	07-01-81	2230	07-01-81	2300	.08
	6	E .32	—	—	—	—	—
	7	.35	07-01-81	2150	07-01-81	2235	.08
	8	.22	07-01-81	2230	07-01-81	2300	.05
	9	.35	07-01-81	2225	07-01-81	2310	.08
	10	.38	07-01-81	2225	07-01-81	2310	.10
18	1	.41	07-13-81	0130	07-13-81	0345	.05
	2	.40	07-13-81	0055	07-13-81	0315	.04
	3	.39	07-13-81	0055	07-13-81	0325	.04
	4	.40	07-13-81	0045	07-13-81	0330	.04
	5	.40	07-13-81	0140	07-13-81	0405	.05
	6	.30	07-13-81	0125	07-13-81	0325	.03
	7	.32	07-13-81	0055	07-13-81	0310	.04
	8	.37	07-13-81	0130	07-13-81	0345	.05
	9	.32	07-13-81	0125	07-13-81	0345	.03
	10	.34	07-13-81	0135	07-13-81	0350	.04
19	1	.50	07-18-81	1900	07-18-81	1925	.15
	2	.40	07-18-81	1820	07-18-81	1845	.15
	3	.38	07-13-81	1830	07-18-81	1900	.19
	4	.30	07-18-81	1830	07-18-81	1900	.11
	5	.40	07-18-81	1855	07-18-81	1925	.16
	6	.32	07-18-81	1835	07-18-81	1855	.13
	7	.41	07-18-81	1825	07-18-81	1905	.14
	8	.72	07-18-81	1900	07-18-81	1935	.47
	9	.55	07-18-81	1905	07-18-81	1935	.26
	10	.77	07-18-81	1905	07-18-81	1930	.32

Table 3.—Total rainfall amount, starting and ending date and time, and maximum 5-minute amount from recording rain gage sites for sampled runoff events, April 1981-July 1982, Rapid City, South Dakota—Continued

Runoff event number	Rain gage site number	Total rainfall (inches)	Rainfall start		Rainfall end		Maximum 5-minute amount (inches)
			Date	Time	Date	Time	
20	1	0	—	—	—	—	—
	2	.26	07-23-81	1755	07-23-81	1810	0.14
	3	.24	07-23-81	1800	07-23-81	1815	.12
	4	.05	07-23-81	1755	07-23-81	1815	.03
	5	.24	07-23-81	1835	07-23-81	1850	.12
	6	E 1.61	—	—	—	—	—
	7	.39	07-23-81	1800	07-23-81	1830	.13
	8	.26	07-23-81	1835	07-23-81	1850	.16
	9	.40	07-23-81	1835	07-23-81	1855	.27
	10	.82	07-23-81	1835	07-23-81	1905	.33
21	1	2.71	07-25-81	0115	07-25-81	2330	.18
	2	2.38	07-25-81	0055	07-25-81	2220	.14
	3	2.69	07-25-81	0100	07-25-81	2225	.18
	4	2.94	07-25-81	0045	07-25-81	2215	.31
	5	2.05	07-25-81	0120	07-25-81	2255	.08
	6	1.88	07-24-81	2400	07-25-81	1955	.11
	7	E 2.73	—	—	—	—	—
	8	3.47	07-25-81	0100	07-25-81	2135	.28
	9	2.77	07-25-81	0055	07-25-81	2130	.29
	10	2.25	07-25-81	0050	07-25-81	2140	.11
22	1	.44	10-04-81	2135	10-05-81	0950	.01
	2	.45	—	—	—	—	—
	3	.57	—	—	—	—	—
	4	.51	—	—	—	—	—
	5	.52	10-04-81	2045	10-05-81	1050	.01
	6	.49	—	—	—	—	—
	7	.58	—	—	—	—	—
	8	.51	10-04-81	2045	10-05-81	1015	.01
	9	.57	10-04-81	2045	10-05-81	1050	.02
	10	.53	10-04-81	2045	10-05-81	1020	.01
26	1	.57	05-10-82	0430	05-10-82	0735	.04
	2	.61	05-10-82	0405	05-10-82	0705	.03
	3	.67	05-10-82	0405	05-10-82	0715	.03
	4	.74	05-10-82	0420	05-10-82	0720	.06
	5	.79	05-10-82	0405	05-10-82	0715	.05
	6	.68	05-10-82	0405	05-10-82	0710	.05
	7	.76	05-10-82	0405	05-10-82	0705	.06
	8	.76	05-10-82	0435	05-10-82	0740	.07
	9	.81	05-10-82	0435	05-10-82	0745	.04
	10	.80	05-10-82	0435	05-10-82	0745	.06

Table 3.—Total rainfall amount, starting and ending date and time, and maximum 5-minute amount from recording rain gage sites for sampled runoff events, April 1981-July 1982, Rapid City, South Dakota—Continued

Runoff event number	Rain gage site number	Total rainfall (inches)	Rainfall start		Rainfall end		Maximum 5-minute amount (inches)
			Date	Time	Date	Time	
28	1	0.10	05-17-82	1415	05-17-82	1645	0.01
	2	.16	05-17-82	1430	05-17-82	1540	.03
	3	.13	05-17-82	1445	05-17-82	1655	.02
	4	.08	05-17-82	1415	05-17-82	1635	.02
	5	.30	—	—	—	—	—
	6	.10	—	—	—	—	—
	7	.28	05-17-82	1450	05-17-82	1620	.09
	8	.29	05-17-82	1505	05-17-82	1555	.09
	9	.68	05-17-82	1535	05-17-82	1600	.14
	10	.12	05-17-82	1530	05-17-82	1605	.04
29	1	.97	05-19-82	1945	05-20-82	1205	.06
	2	.98	05-19-82	1915	05-20-82	1120	.05
	3	1.09	05-19-82	1910	05-20-82	1115	.05
	4	1.15	05-19-82	1910	05-20-82	1120	.10
	5	1.34	05-19-82	1910	05-20-82	1055	.08
	6	1.15	05-19-82	1915	05-20-82	1120	.13
	7	1.22	05-19-82	1910	05-20-82	1040	.12
	8	1.43	05-19-82	1940	05-20-82	1115	.06
	9	1.55	05-19-82	1940	05-20-82	1125	.09
	10	1.38	05-19-82	1940	05-20-82	1115	.14
31	1	.36	06-15-82	0015	06-15-82	0310	.13
	2	.25	06-15-82	0020	06-15-82	0310	.05
	3	.29	06-15-82	0005	06-15-82	0345	.06
	4	.29	06-15-82	0010	06-15-82	0330	.07
	5	.23	06-15-82	0010	06-15-82	0320	.06
	6	.29	06-15-82	0010	06-15-82	0320	.08
	7	.33	06-15-82	0005	06-15-82	0315	.08
	8	.27	06-15-82	0035	06-15-82	0340	.05
	9	.36	06-15-82	0035	06-15-82	0335	.09
	10	.52	06-15-82	0040	06-15-82	0330	.15
32	1	.82	06-16-82	1115	06-16-82	1810	.13
	2	.55	06-16-82	1225	06-16-82	1755	.22
	3	.65	06-16-82	1110	06-16-82	1810	.21
	4	.84	06-16-82	1110	06-16-82	1805	.19
	5	.61	06-16-82	1255	06-16-82	1740	.26
	6	.36	06-16-82	1315	06-16-82	1810	.18
	7	.40	06-16-82	1320	06-16-82	1805	.24
	8	.53	06-16-82	1145	06-16-82	1835	.10
	9	.57	06-16-82	1155	06-16-82	1850	—
	10	.56	06-16-82	1320	06-16-82	1835	.13

Table 3.--Total rainfall amount, starting and ending date and time, and maximum 5-minute amount from recording rain gage sites for sampled runoff events, April 1981-July 1982, Rapid City, South Dakota--Continued

Runoff event number	Rain gage site number	Total rainfall (inches)	Rainfall start		Rainfall end		Maximum 5-minute amount (inches)
			Date	Time	Date	Time	
33	1	0.29	07-08-82	1300	07-08-82	1430	0.13
	2	.27	07-08-82	1310	07-08-82	1400	.11
	3	.22	07-08-82	1325	07-08-82	1410	.09
	4	.37	07-08-82	1325	07-08-82	1450	.12
	5	.23	07-08-82	1325	07-08-82	1410	.08
	6	.10	07-08-82	1335	07-08-82	1405	.03
	7	.09	07-08-82	1330	08-08-82	1400	.03
	8	.22	07-08-82	1400	07-08-82	1520	.09
	9	.19	07-08-82	1410	07-08-82	1445	.06
	10	.23	07-08-82	1415	07-08-82	1450	.12

E Estimated value.

On large watersheds, rainfall during most rainstorms, and particularly during thunderstorms, is often distributed unequally. The rainfall at any single recording station does not accurately represent the rainfall over the entire basin. However, when rainfall records are available at several locations within and near the drainage basins, mathematical methods are available that will allow the average precipitation over the basin to be determined more accurately.

The Thiessen Polygon method was used to determine the average rainfall over the investigated watersheds for sampled runoff events. The Thiessen method involves determining an areas of influence for each station. Briefly, to apply the method: (1) Locate the rainfall sites on a map of the area that includes drainage basin boundaries, (2) connect each station by straight lines with the several nearest stations to form a series of triangles, (3) draw perpendicular bisectors on each of these lines and extend them to intersect with other bisectors, thus forming a series of irregular polygons around each site, and (4) measure the area of each polygon and divide through by the total area in the watershed to obtain the fraction of the total watershed area lying within each polygon. These fractions, known as Thiessen Constants, are applied to the individual rainfall amount measured at each site within the watershed in computing the area weighted average rainfall. Table 4 lists the Thiessen Polygon area and Thiessen Constants used in determination of area-average rainfall over the investigated watersheds.

Table 4.—Thiessen Polygon areas and Thiessen constants used in the determination of area-averaged rainfall over the Rapid City study area

Drainage basin name	Rain gage site number[1]	Polygon area (square miles)	Thiessen constant
West Rapid City	1	14.94	0.456
	2	8.81	.269
	3	1.01	.031
	4	7.92	.241
	8	.11	.003
Total		32.79	1.000
Deadwood Avenue	2	2.91	.481
	3	.78	.129
	5	2.36	.390
Total		6.05	1.000
Central Business District	3	.17	.030
	5	2.07	.363
	6	2.36	.414
	7	.67	.118
	8	.43	.075
Total		5.70	1.000
East Rapid City	6	1.04	.414
	7	1.21	.482
	10	.26	.104
Total		2.51	1.000
Robbinsdale	7	.21	.066
	8	1.66	.524
	9	1.25	.394
	10	.05	.016
Total		3.17	1.000
Rapid City study area	1	14.94	.298
	2	11.72	.233
	3	1.96	.0[illegible]
	4	7.92	.1[illegible]
	5	4.43	.08[illegible]
	6	3.40	.067
	7	2.09	.042
	8	2.20	.044
	9	1.25	.025
	10	.31	.006
Total		50.22	1.000

---

[1] Site number refers to number listed on table 2.

Table 5 lists the total rainfall, area averaged using the Thiessen Polygon method, for investigated runoff events. Data from the recording rain-gage network was used in these determinations for events 8 through 33, excepting events 23-25 and 27 and 30 as previously discussed. The accuracy of data for events 8 through 33 is considered excellent within the limits of uncertainty posed by the described methods. Events in which the rainfall was very unevenly distributed, such as events 14 and 20, are likely to contain larger errors. Rainfall amounts for events 1 through 6 were estimated based on data from NOAA and information gathered from private citizens. The accuracy of these data should be considered poor and individual amounts may be as much as 50% in error. Rainfall amounts for event number 7 were estimated based on the non-recording rain-gage network which was placed in operation between events 6 and 7. The accuracy of data for event number 7 is considered good.

Table 5.—Rainfall amounts of sampled runoff events, area-averaged by subbasins and by study area, June 1980-July 1982, Rapid City, South Dakota

	Area-averaged rainfall, in inches					
Runoff event number	West Rapid City	Deadwood Avenue	Central Business District	East Rapid City	Robbinsdale	Rapid City study area
1	E 0.6	E 0.7	E 0.5	E 0.5	E 0.5	E 0.6
2	E .2	E .2	E .2	E .2	E .2	E .2
3	E .9	E .7	E .8	E .5	E .8	E .8
4	E .3	E .3	E .3	E .3	E .3	E .3
5	E .3	E .2	E .3	E .2	E .2	E .3
6	E .2	E .2	E .2	E .2	E .2	E .2
7	E 2.12	E 2.10	2.30	E 2.22	E 2.18	E 2.12
8	.09	.09	.05	.04	.05	.08
9	.18	.14	.14	.15	.17	.17
10	.23	.34	.37	.35	.33	.27
11	.37	.30	.29	.31	.18	.34
12	.21	.20	.18	.18	.19	.14
13	.23	.21	.27	.28	.23	.23
14	3.30	2.90	2.18	1.87	2.20	2.99
15	.73	.74	.62	.54	.59	.70
16	.07	.17	.32	.34	.29	.14
17	.42	.35	.29	.34	.28	.39
18	.40	.40	.35	.31	.35	.39
19	.42	.40	.39	.41	.63	.43
20	.09	.25	.82	.94	.33	.25
21	2.68	2.29	2.18	2.33	3.12	2.59
22	.46	.49	.52	.54	.54	.48
[a]23-SM	E .3	E .3	E .3	E .3	E .3	E .3
[a]24-SM	E .3	E .3	E .3	E .3	E .3	E .3
[a]25-SM	0	0	0	0	0	0
26	.62	.69	.74	.73	.78	.66
[b]27	--	--	--	--	--	--
28	.11	.21	.21	.19	.44	.16
29	1.02	1.14	1.25	1.21	1.46	1.10
[b]30	--	--	--	--	--	--
31	.31	.25	.27	.33	.31	.30
32	.75	.59	.48	.40	.54	.67
33	.30	.25	.16	.11	.20	.26

E Estimated value.

[a] Snowmelt event. Precipitation amount estimated based on temperature and precipitation data obtained by the National Oceanic and Atmospheric Administration. Events 24 and 25 are two periods of melting from a single snowfall.

[b] Runoff event used for automatic sampler calibration. Rainfall data not necessary.

DISCHARGE DATA

Hydrology of Rapid Creek

Rapid Creek originates within the Black Hills of South Dakota as discharge from springs and overland runoff. The 371 square miles (U.S. Geological Survey, 1981) of drainage area above the Rapid City study area is wholly within the central Black Hills and consists of mostly forested rolling hills and steep, narrow valleys. Rapid Creek in this reach has the characteristics of a mountain stream with a relatively steep gradient averaging 48 feet per mile and a sand, gravel, and cobble bottom.

Below Rapid City, Rapid Creek enters the high plains of western South Dakota and flows about 70 stream miles southeast before discharging to the Cheyenne River. Rapid Creek occupies a broad alluvial-floored valley and has a meandering mud-bottomed channel characteristic of a prairie stream. The average gradient downstream from Rapid City is about 13 feet per mile.

The transformation from a mountain-type to a prairie-type stream occurs, for the most part, within the Rapid City study area. The dramatic change in the morphological characteristics of Rapid Creek in the relatively short 10-mile long study reach is caused by the types and structure of the underlying rocks. Due to the eastward dipping trend of the rocks along the eastern flank of the Black Hills uplift, Rapid Creek crosses a series of formation outcrops as it passes through Rapid City. Upstream from Rapid City, and extending into the first miles of the study reach, Rapid Creek traverses crystalline rocks, sandstones, and limestones. These units are resistant to erosion and Rapid Creek occupies a deep, narrow gorge known as Dark Canyon. Underlying the last few miles of the study reach, and extending hundreds of miles to the east, are the Cretaceous shales of the great plains. These shales are easily eroded and perennial streams form broad, shallow valleys with low gradients.

Rapid Creek receives perennial tributary flow at three locations in the study reach. Figure 8 shows a flow profile of the study reach made in December 1981. The large increase at mile 9.2 is the result of Cleghorn Springs. A 1973 report by Rahn and Gries that describes major springs in the Black Hills, reports the average discharge of Cleghorn Spring to be between 10 and 11 cubic feet per second (ft^3/s) during the period 1968-1970. This flow is sometimes reduced by the interception of spring water by a shallow high-capacity well developed in the alluvium in the discharge area (Rahn and Gries, 1973) and used by Rapid City as a municipal water supply. The two other point sources of inflow, at miles 6.7 and 5.7, are also the result of groundwater discharge. Lime Creek, which enters Rapid Creek at mile 6.7, is the result of a group of springs, known as City Spring, located about 2 miles north of Rapid Creek in the northwestern part of Rapid City. The discharge of City Spring is reported to be about 0.9 ft^3/s during 1968-1970 (Rahn and Gries, 1973). The other tributary which enters Rapid Creek at mile 5.7, is the result of several artesian wells located in the vicinity of the Rapid City cement plant about 1 mile north of Rapid Creek. The discharge of these flowing wells is reported to be roughly equivalent to that of City Spring (Rahn and Gries, 1973).

Figure 8.—Discharge profile of the Rapid Creek study reach on December 10, 1981.

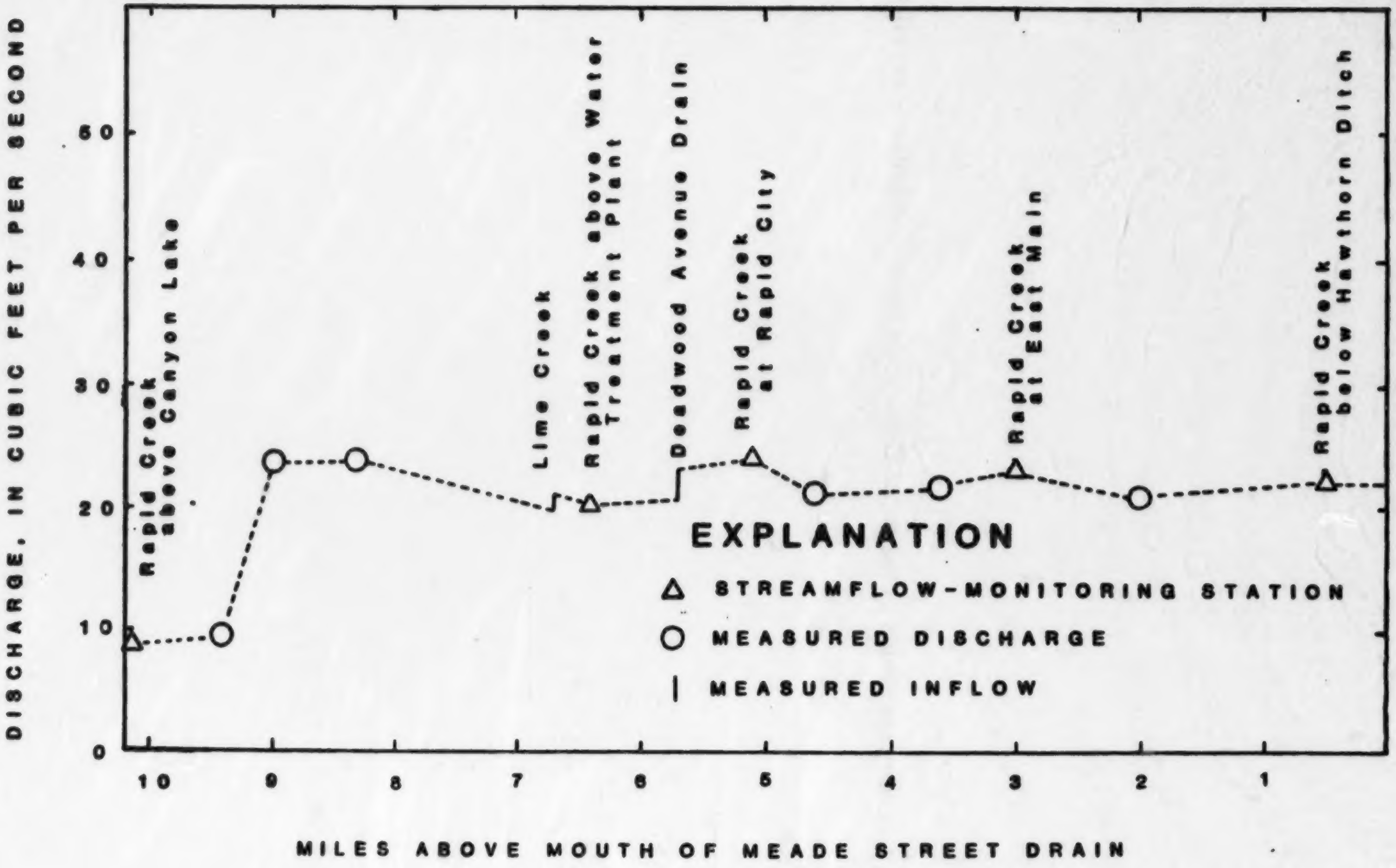

Figure 8.—Discharg 'e of the Rapid Creek study reach on December 10, 1981.

Water is withdrawn from Rapid Creek at two locations in the study reach. The city of Rapid City has a withdrawal structure at the municipal water treatment plant at mile 6.2, about 0.2 mile downstream from the monitoring station, Rapid Creek above Water Treatment Plant (site number 2 on plate 1). Withdrawal of water from Rapid Creek for use as a municipal water supply only occurs during the summer months when the need for lawn irrigation greatly increases the demand. The diversion of water from Rapid Creek for irrigation takes place at the headgate of Hawthorne Ditch at mile 2.0, about 1.5 miles upstream from the monitoring station, Rapid Creek below Hawthorne Ditch (site number 5 on plate 1). Withdrawal of water at this site only occurs during the irrigation season, which normally extends from May 1 to about mid-October.

Two large reservoirs, Deerfield and Pactola, are located upstream from Rapid City and regulate the flow of Rapid Creek. Deerfield Reservoir is located on Castle Creek, a major tributary of Rapid Creek, about 53 stream miles above Rapid City. Deerfield began regulating flow in December 1945 and has a capacity of 15,153 acre-feet (U.S. Geological Survey, 1981). Pactola Reservoir is located on the main stem of Rapid Creek about 21 stream miles above Rapid City. Pactola began regulating flow in August 1956 and has a conservation capacity of 55,963 acre-feet and an additional flood storage capacity of 43,050 acre-feet (U.S. Geological Survey, 1981). Both reservoirs provide flood control and water for municipal and irrigation uses. The storage period varies yearly based upon the timing and amount of precipitation on irrigation areas downstream.

Although the flow in Rapid Creek is largely controlled by the release of water from Pactola Reservoir, inflow from snowmelt and rainfall runoff creates daily and seasonal variability. Figures 9, 10, and 11 show the mean daily discharge measured during the study at two long-term streamflow stations in the Rapid Creek study reach. The station, Rapid Creek above Canyon Lake (site 1 on plate 1), is located at the head of the study reach. This site is upstream from Cleghorn Spring and has low winter flows and high discharge variability. The station, Rapid Creek at Rapid City (site 3 on plate 1), is located near the middle of the study reach below the three perennial tributaries. The influence of these ground-water inflows is apparent in higher and more stable discharge during the winter period. Also shown for comparison purposes is the mean monthly discharge for the two stations. The average monthly discharge was computed for the period October 1, 1963-September 30, 1981.

Figure 9.--Mean daily discharge measured during 1980 and mean monthly discharge for the period Oct. 1, 1963-Sept. 30, 1981, at Rapid Creek above Canyon Lake (06412500) and Rapid Creek at Rapid City (06414000).

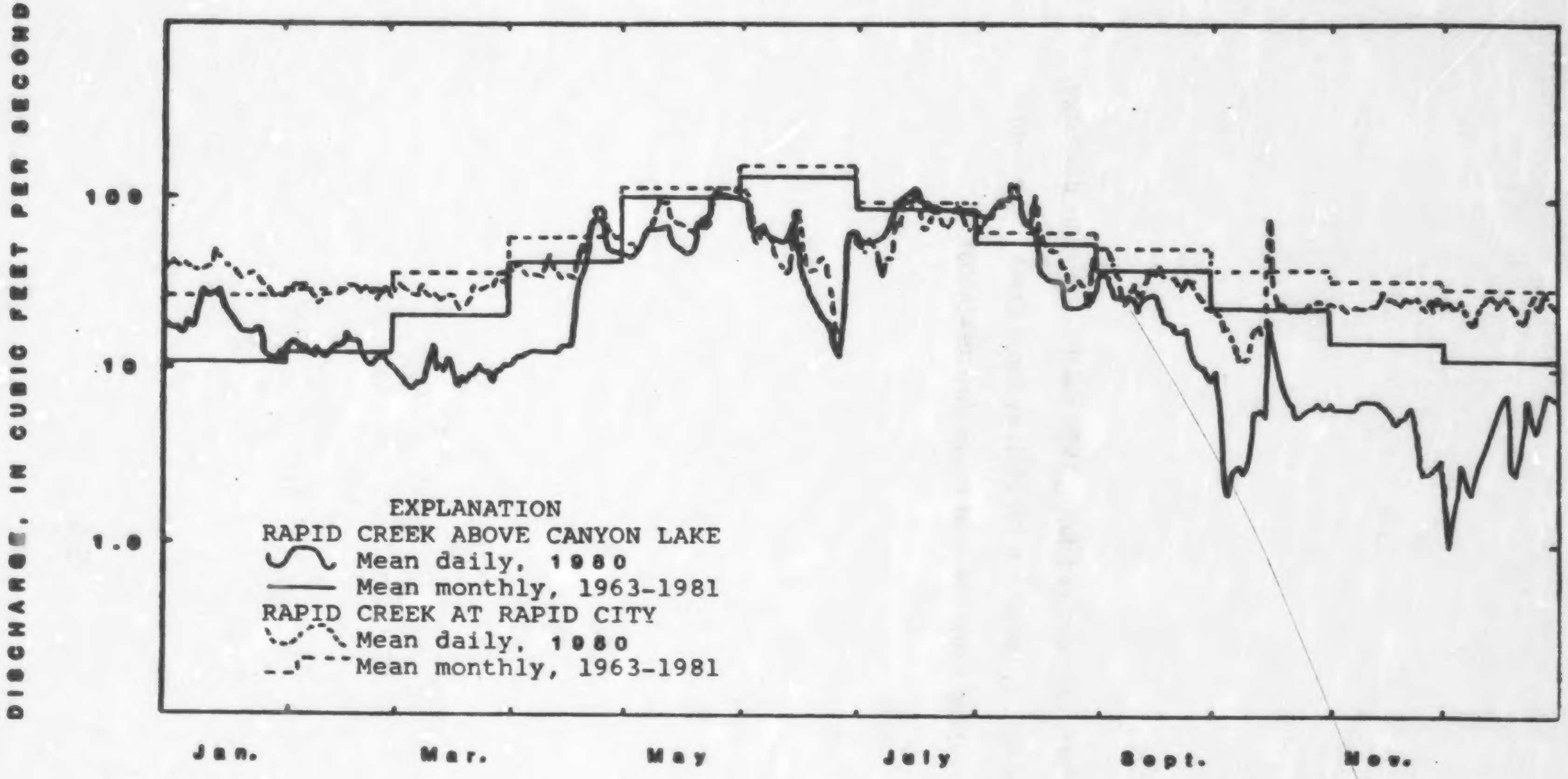

Figure 9.—Mean daily discharge measured during 1980 and mean monthly discharge
1963-Sept. 30, 1981, at Rapid Creek above Canyon
apid Creek at Rapid City (06414000).

Figure 10.—Mean daily discharge measured during 1981 and mean monthly discharge for the period Oct. 1, 1963-Sept. 30, 1981, at Rapid Creek above Canyon Lake (06412500) and Rapid Creek at Rapid City (06414000).

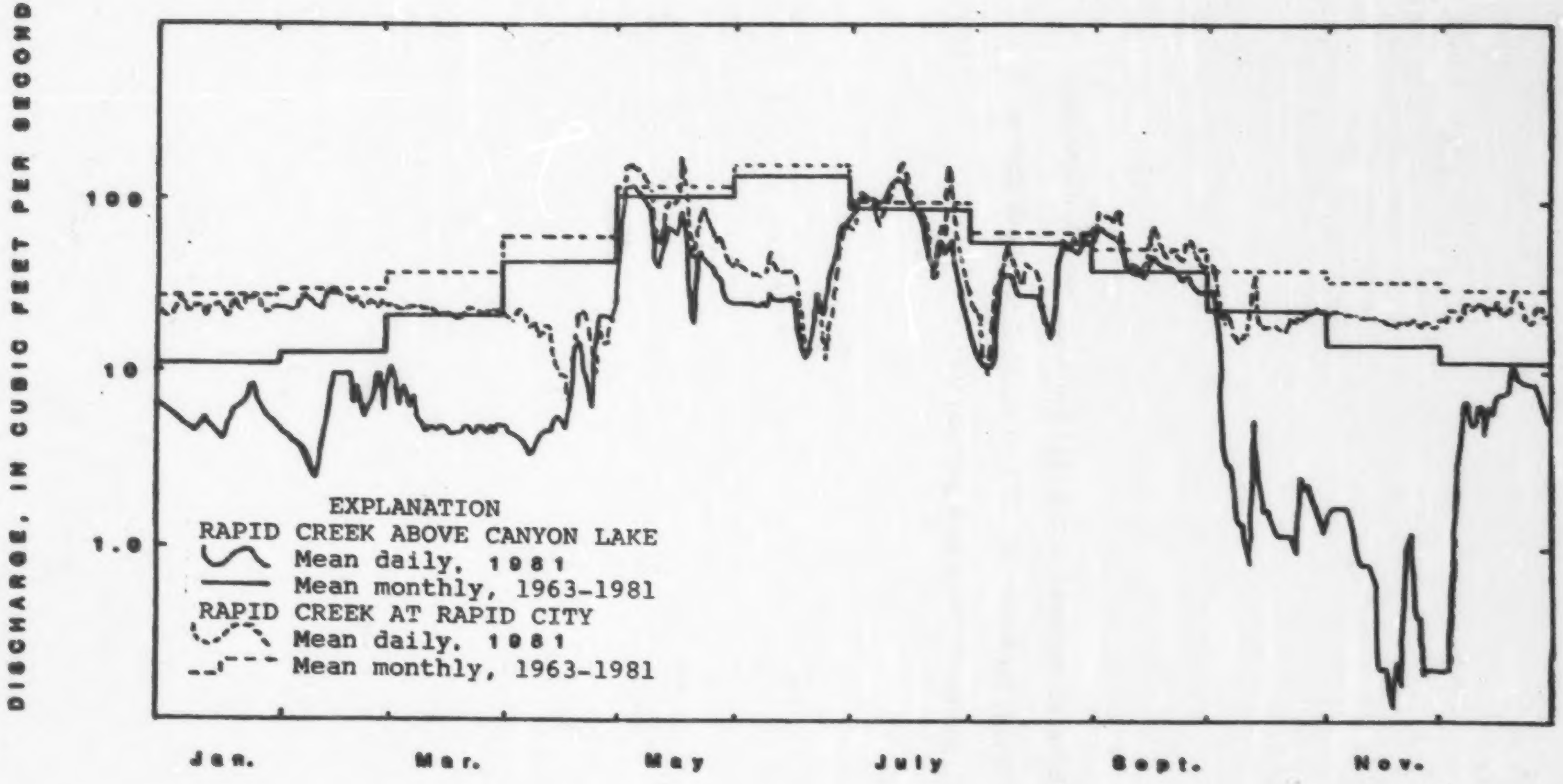

Figure 10.—Mean daily discharge measured during 1981 and mean monthly discharge for the period Oct. 1, 1963-Sept. 30, 1981, at Rapid Creek above Canyon Lake (06412500) and Rapid Creek at Rapid City (06414000).

Figure 11.—Mean daily discharge measured during 1982 and mean monthly discharge for the period Oct. 1, 1963-Sept. 30, 1981, at Rapid Creek above Canyon Lake (06412500) and Rapid Creek at Rapid City (06414000).

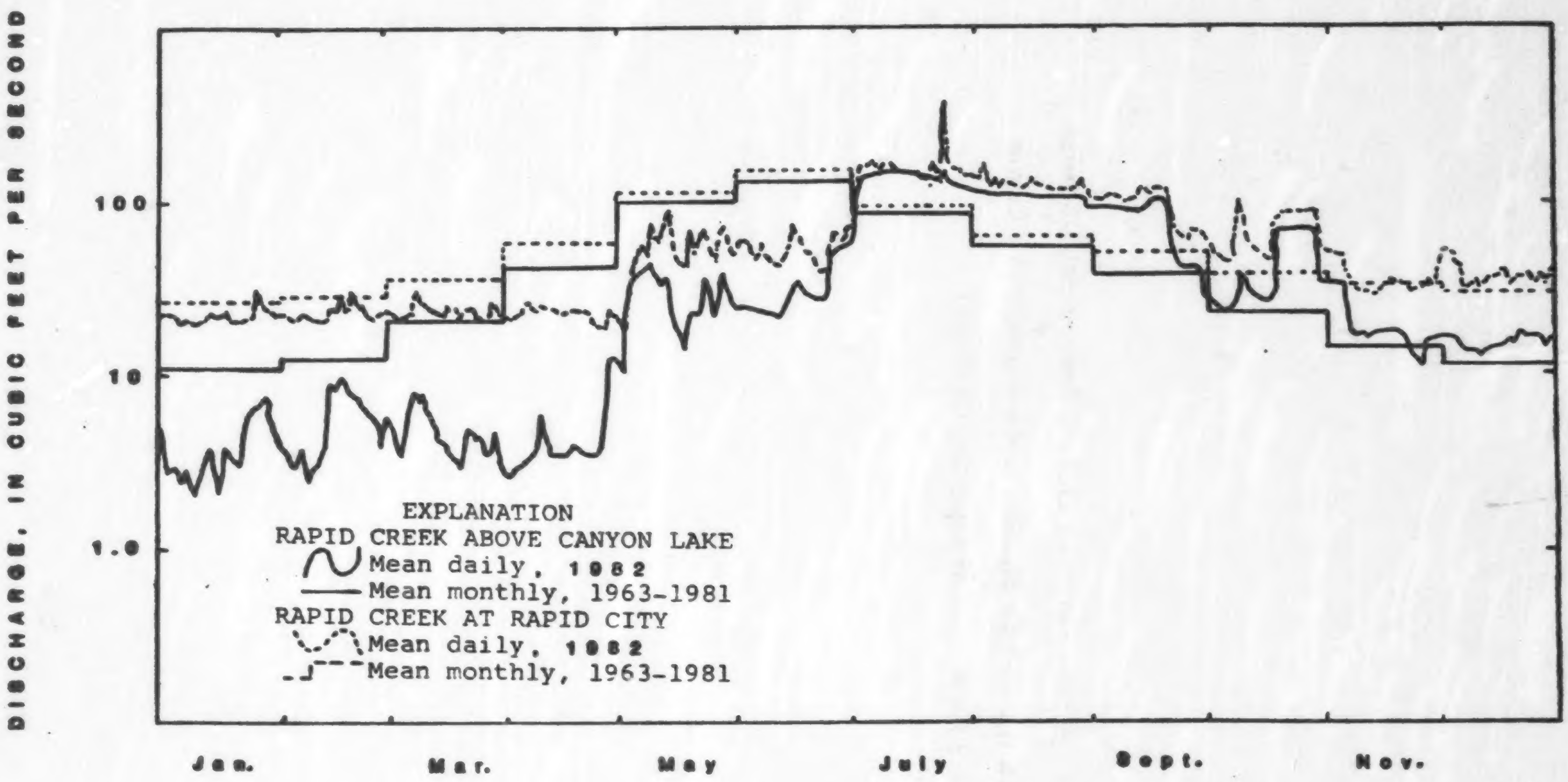

Figure 11.—Mean daily discharge measured during 1982 and mean monthly discharge for the period Oct. 1, 1963-Sept. 30, 1981, at Rapid Creek above Canyon Lake (06412500) and Rapid Creek at Rapid City (06414000).

Table 6 lists applicable monthly statistics for the two stations on Rapid Creek for the period October 1, 1963-September 30, 1981. Figure 12 is the distribution of discharge for the two stations for the months, April through September, for the period April 1, 1964-September 30, 1981. The months April through September were selected to correspond to the period selected for long-term precipitation characterization.

Stream discharge is a continuous process which varies with time, and thus stream-discharge data are said to form a time series. Because stream-discharge data does not occur as discrete values, the time series is usually divided into pieces which can be considered individually. The most common division is the daily mean discharge. The data listed in table 6 and shown in figure 12 were calculated using mean daily discharge. In statistical terms, daily mean discharge is a serially correlated variable because the individual values are nonrandom and nonhomogeneous. A daily mean discharge is strongly related to the discharge of the previous day and lies within a range which depends on the time of year. Thus, the duration curves in figure 12 are merely the distributions of daily means that have occurred, not probability distributions. However, these curves can be considered excellent estimates of the distributions for future periods.

Figure 12.—Distribution of mean daily discharge measured at the gaging stations, Rapid Creek above Canyon Lake and Rapid Creek at Rapid City, for the months April through September, for the period April 1, 1964-September 30, 1981.

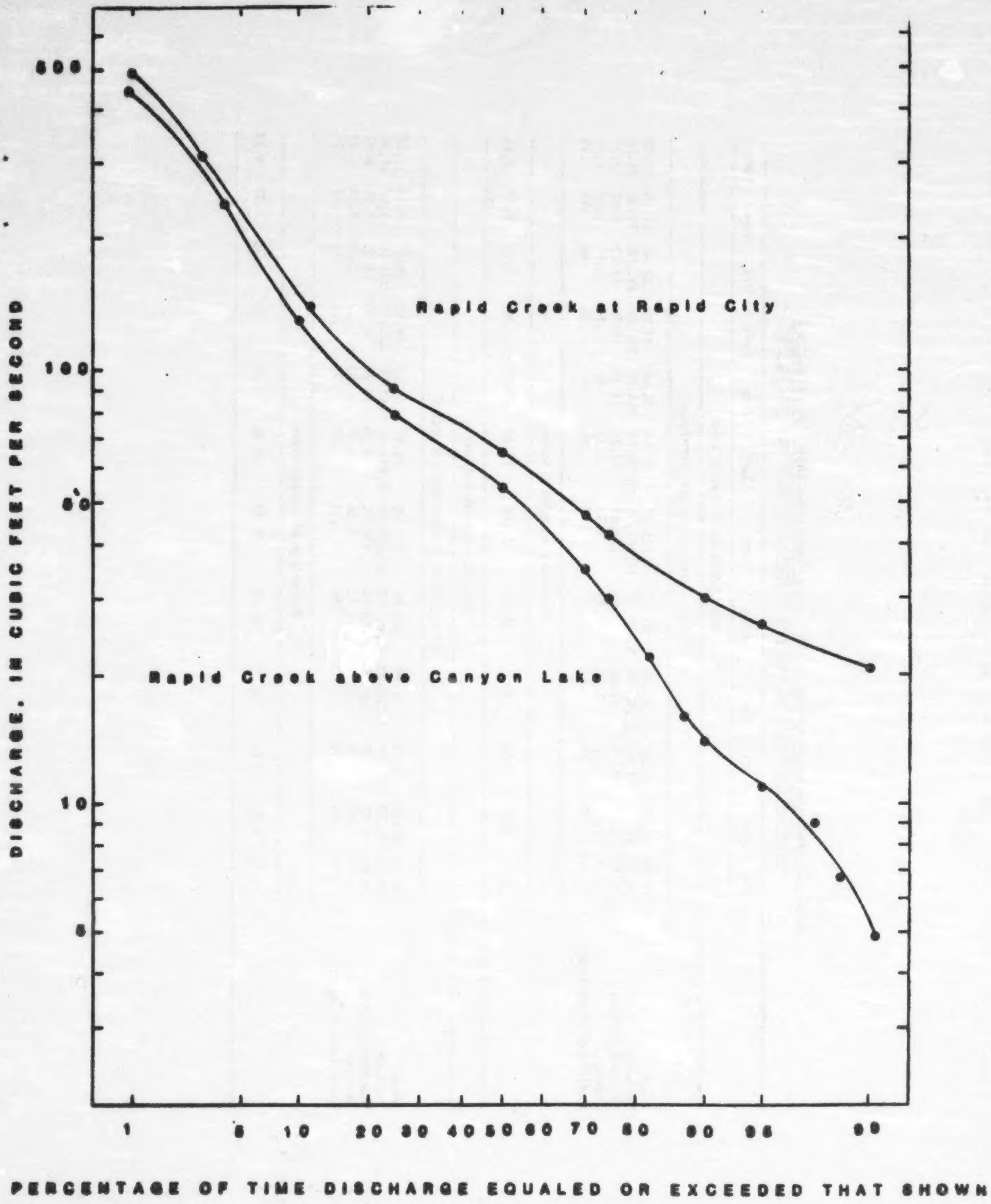

Figure 12.—Distribution of mean daily discharge measured at the gaging stations, Rapid Creek above Canyon Lake and Rapid Creek at Rapid City, for the months April through September, for the period April 1, 1964-September 30, 1981.

Table 6.—Statistics on monthly means for the stations, Rapid Creek above Canyon Lake, and Rapid Creek at Rapid City, for the period October 1, 1963 to September 30, 1981

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Rapid Creek above Canyon Lake												
All values are in cubic feet per second												
Mean	11.50	13.10	21.40	43.60	102.00	135.00	87.90	56.40	39.70	23.60	15.10	12.00
Variance	20.40	24.50	248.00	1,267.00	5,470.00	12,560.00	1,782.00	344.00	206.00	391.00	55.20	26.70
Standard deviation	4.52	4.95	15.70	35.60	74.00	112.00	42.20	18.50	14.30	19.80	7.43	5.17
Skewness	.62	1.74	1.72	2.06	1.39	1.59	1.53	.62	.51	2.41	1.17	1.04
Coefficient of variation	.39	.38	.73	.82	.72	.83	.48	.33	.36	.84	.49	.43
Percentage of average value												
	2.06	2.33	3.82	7.76	18.20	24.10	15.70	10.00	7.06	4.21	2.69	2.14
Rapid Creek at Rapid City												
All values are in cubic feet per second												
Mean	28.20	30.20	38.20	61.40	118.00	156.00	96.90	64.70	52.40	39.80	34.20	31.00
Variance	41.70	52.10	225.00	1,523.00	6,047.00	17,550.00	1,853.00	262.00	222.00	335.00	68.00	41.30
Standard deviation	6.46	7.22	15.00	39.00	77.80	132.00	43.00	16.20	14.90	18.30	8.25	6.42
Skewness	-.05	.73	1.67	1.97	1.52	1.59	1.53	.65	.52	2.20	1.38	.32
Coefficient of variation	.23	.24	.39	.64	.66	.85	.44	.25	.28	.46	.24	.21
Percentage of average value												
	3.75	4.01	5.08	8.17	15.70	20.80	12.90	8.68	6.97	5.30	4.55	4.13

62.a

Discharge Characteristics of Investigated Runoff Events

Continuous discharge data were obtained at the six monitoring sites and at three additional sites during the study. The official station names, numbers, and period of record for these sites are listed in table 7. All discharge data was obtained using established U.S. Geological Survey procedures for discharge determination in natural streams. A complete discussion of these procedures is given in Book 3, Chapter A6 of Techniques of Water Resources Investigations of the U.S. Geological Survey; General Procedure for Gaging Streams, by R. W. Carter and J. Davidian, 1968.

Mean daily discharges over the period of station operation were determined at each of the sites listed in table 7, except for Meade Street Drain at Rapid City (streamflow-monitoring site 6). The nature of the channel at the Meade Street Drain gaging station was such that accurate data could not be determined during periods of non-runoff discharge. The mean daily discharge data, monthly and annual summaries, and other applicable information for these stations have been published by the U.S. Geological Survey in the annual series, Water Resources Data - South Dakota, Water Years 1980, 1981, and 1982.

Discharge hydrographs at the six monitoring sites for each investigated runoff event are shown in figures 13 and 14 in the supplemental information section at the rear of this report. Discharge hydrographs were not prepared for the three snowmelt events (event numbers 23-25) because ice cover rendered the stage record, and therefore the discharge record, inaccurate. Discharge hydrographs were not necessary for the two automatic sampler calibration events (event numbers 27 and 30) and so were not prepared. The shaded area on these figures represents the event runoff volume and the calculated volume is listed with each hydrograph. The discharge and runoff volume data in these figures are based on a data recording interval of five minutes.

Table 7.—U.S. Geological Survey streamflow measurement stations operated in the Rapid City study area, 1980-82

Site number[1]	Station name	U.S. Geological Survey station identification number[2]	Period of record
1	Rapid Creek above Canyon Lake, near Rapid City, SD	06412500	July 1946 to September 1982 (continuing).
2	Rapid Creek above Water Treatment Plant, at Rapid City, SD	06413700	May 1980 to September 1982.
3	Rapid Creek at Rapid City, SD	06414000	June 1903 to November 1906. July 1942 to September 1982 (continuing).
4	Rapid Creek at East Main Street, at Rapid City, SD	06414700	May 1980 to September 1982.
5	Rapid Creek below Hawthorne Ditch, at Rapid City, SD	06416000	August 1946 to October 1953. May 1980 to September 1982.
6	Meade Street Drain, at Rapid City, SD	06416300	May 1980 to September 1982.
7	Lime Creek at mouth, at Rapid City, SD	06413650	April 1981 to September 1981. April 1982 to September 1982.
8	Deadwood Avenue Drain at mouth, at Rapid City, SD	06413800	April 1981 to September 1981. April 1982 to September 1982.
9	Hawthorne Ditch at Rapid City, SD	06415500	August 1946 to September 1953. May 1981 to September 1981. May 1982 to July 1982.

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[1] Number refers to site number on plate 1.

[2] Downstream order numb [illegible] the [illegible] rvey to identify streamflow measurement stations. This system of identificat [illegible] taries between any two stations and the rank of the tributary on whic

WATER-QUALITY DATA

Water-quality aspects of the Rapid City Urban Runoff Project included: (1) Collection of water samples during non-runoff periods to define baseline quality, (2) collection of water samples during precipitation runoff events, (3) measurement of four field parameters (temperature, specific conductance, pH, and dissolved oxygen concentration) in conjunction with water sample collection, (4) compositing of discrete runoff event samples into single samples representative of event mean concentrations, (5) laboratory analysis of both discrete and composited water samples, and (6) laboratory quality control and assurance. The water-quality field and laboratory techniques used during the project are described in this section. The laboratory analyses are listed in table 16 in the supplemental information section at the back of the report.

Field Proced

Water-quality samples were obtain reamflow-monitoring stations (sites 1 through 6) shown on plate 1 and list le 7. As previously described, these stations were equipped with water-stage recorders so that a continuous record of discharge would be available. During 1980, all stations were sampled manually. During 1981, station 1, 3, 5, and 6 were equipped with automatic samplers while stations 2 and 4 were sampled manually. During 1982, stations 3, 4, 5, and 6 were equipped with automatic samplers while stations 1 and 2 were sampled manually. The automatic sampler was transferred from station 1 to 4 after it was determined stage rises at station 1 were not sufficient to initiate sampling. The drainage area upstream from station 1 is almost totally covered by thick evergreen forest and little runoff occurs except during exceptionally heavy precipitation.

Manually collected water samples for chemical analysis were obtained by wading the stream and collecting depth-integrated aliquots at from 10 to 15 verticals across the channel. In the first year of the study, manually collected baseline and precipitation runoff samples were collected directly into new, one-gallon plastic milk containers. During 1981 and 1982, samples were collected by use of DH-77 depth-integrating samplers. After collection, the samples were transferred to new, one-gallon plastic milk containers. All sampling equipment and containers were rinsed three times native water prior to taking the first aliquot. The sample was immediately cooled to 4°C. Date, time, and stage were recorded immediately before and after sample collection.

All water samples for sediment analysis were collected manually by use of either DH-48, DH-77 (hand-held), or D-49 (cable-suspended) depth-integrating sediment samplers. In all cases, a standard Geological Survey procedure for suspended-sediment sampling, the equal transit rate (ETR) method, was used. The ETR for suspended-sediment sampling is presented in detail by Guy and Norman (1970). Briefly, the stream is divided into 10 to 20 equally spaced verticals. The equal spacing between verticals and an equal transit rate, both up and down in all verticals, yields a sample volume proportional to the streamflow. The maximum transit rate must not exceed $0.4V_m$ where V_m is the mean flow velocity of the stream. During exceptionally rapid changes in stage, fewer than 10 verticals were chosen.

A complex automatic sampling and instrumentation system, the Geological Survey Urban Hydrology Monitoring System (UHMS) was used to collect the majority of precipitation runoff samples. The UHMS allowed more frequent sampling through the runoff event hydrograph and alleviated some of the logistic problems involved in manually sampling short duration precipitation runoff.

Components of the UHMS are: (1) A microprocessor based system control unit (SCU), (2) a digital punch recorder, (3) a vacuum draw water sampler with intake line, and (4) a large refrigerated cooler for chilling samples. The SCU, produced by Snyder Instrument Company, controls the functioning of the system and processes data received from rain gages, stage sensors, and the water sampler. The SCU is on standby until a threshold value of stage (corresponding to some selected discharge) switches the system to the storm mode. This activates the recorder and initiates sample collection. A unique aspect of the system is that the sample interval can be varied according to preselected thresholds of stage, or change in stage, as well as by time. The water sampler, produced by Manning Environmental Corporation, consists of an intake, suction line, vacuum chamber, and a sample distributor. After initiation by the SCU, the sampler flushes the intake and suction line, draws about 4 liters of water into the vacuum chamber, distributes the sample sequentially to one of 24 sample containers, and reflushes the intake and suction line. The sample containers, new one-gallon plastic milk containers, are located in the refrigerated cooler, and the sample is immediately cooled to $4^{o}C$. The data recorded for each sample include, Julian date, time to the nearest second, stage, and sample number.

Both manually and automatically collected water samples for chemical analysis were transported to the laboratory at the South Dakota School of Mines and Technology as soon as practicable. Under most conditions, samples were delivered to the laboratory within six hours of collection. Each sample container was labeled as to station, date, time of collection, and stage, with a preprinted waterproof, adhesive label or wired on tag.

Time and stage were recorded immediately before and after the collection of samples for sediment analysis. Intervals at which each bottle was used and other pertinent information was recorded and entered either on the paper bottle caps, if pint-size glass sample bottles were used, or on adhesive labels, if one-half gallon size plastic sample bottles were used. Sediment samples were shipped by mail to Geological Survey sediment laboratories at either Lincoln, Nebraska, or Iowa City, Iowa, for analysis.

The four field parameters, water temperature, specific conductance, pH, and dissolved-oxygen concentration, were measured in conjunction with the manual collection of water samples. A Hydrolab Environmental Data Systems Model 4041 Digital four parameter meter was used for these measurements. The Hydrolab instrument consists of a Sonde unit, which contains the sensors, a connecting cable, and an indicator unit. The Sonde consists of a temperature thermistor, a four-electode conductivity cell, a glass pH electrode, a reference electrode, and a Clark polarographic dissolved oxygen cell. The indicator unit consists of a digital readout, a rotary switch to select the parameter for readout, and calibration controls. This instrument is also provided with a circulator unit which can be connected to the bottom (probe end) of the Sonde to circulate water past the dissolved oxygen cell in still water. The Hydrolab instrum is fully temperature compensated.

Laboratory Procedures

Regular analysis of water samples for chemical constituents took place at the Civil Engineering Laboratory at the South Dakota School of Mines and Technology. Occasionally, due to equipment failure or staff scheduling problems, partial or complete sets of samples were analyzed by the U.S. Geological Survey Central Laboratory at Arvada, Colorado. Analysis efforts by the Geological Survey included: nitrogen, ammonia plus organic, analysis for sample sets collected in July and August of 1980; a complete analysis for a set of low-flow samples collected on October 9, 1980; analysis of sampling sets from the two snowmelt events collected on December 10 and 20, 1981; analysis of sequential discrete samples collected on May 10, 1982; and all total organic carbon analysis. Sample handling and analysis procedures followed standard Geological Survey methods. Detailed information on standard Geological Survey analytical procedures is presented by M. W. Skougstad and others, editors, "Methods for determination of inorganic substances in water and fluvial sediments," USGS--TWRI Book 5, Chapter A1, 1979, 626 pages.

The water-quality constituents selected for analysis and the analytical procedures used by the SDSM&T laboratory are presented in table 8. The entire group of constituents listed on this table were measured on a regular basis only on water samples collected at streamflow-monitoring station six, Meade Street Drain. Analysis for solids, dissolved; nitrogen, ammonia plus organic; lead, dissolved and total; major cation and anions; and both biochemical oxygen demand parameters were not normally made on samples from the five Rapid Creek stations.

Table 8.—Analytical procedures used by the laboratory at South Dakota School of Mines and Technology for analysis of water samples for the Rapid City Urban Runoff Project

Constituent	Method	Reference
Alkalinity, total ($CaCO_3$)	Titration to pH 4.5	Std. methods[1/], p. 278.
Biochemical oxygen demand, five-day, carbonaceous	Electrode	Std. methods, p. 278.
Biochemical oxygen demand, ultimate, carbonaceous	Electrode	None.
Calcium, total recoverable	Digestion followed by atomic absorption	1979 US EPA methods,[2/] p. 215.1.
Chemical oxygen demand	Dichromate reflux	Std. methods, p. 550.
Chloride, dissolved	Filtration, mercuric nitrate	Std. methods, p. 304.
Coliform, fecal	Membrane filter	Std. methods, p. 937.
Lead, dissolved	Filtration, digestion followed by atomic absorption	Std. methods, p. 147.
Lead, total recoverable	Digestion	Std. methods, p. 147.
Magnesium, total recoverable	Digestion followed by absorption	Std. methods, p. 148.
Nitrogen, ammonia plus organic, dissolved	Filtration, digestion, followed by electrode method	1979 US EPA methods, p. 351.4.
Nitrogen, ammonia plus organic, total	Digestion followed by electrode method	1979 US EPA methods, p. 351.4.
Nitrogen, ammonia, dissolved	Filtration followed by electrode method	1979 US EPA methods, p. 350.3.
Nitrogen, nitrite plus nitrate, dissolved	Filtration followed by cadmium reduction	1979 US EPA methods, p. 353.3.
Oil and grease	Separatory funnel extraction	1979 US EPA methods, p. 413.1.
pH	Electrometric method	1979 US EPA methods,

Table 8.—Analytical procedures used by the laboratory at South Dakota School of Mines and Technology for analysis of water samples for the Rapid City Urban Runoff Project--Continued

Constituent	Method	Reference
Phosphorus, dissolved	Filtration followed by automated ascorbic acid method	1979 US EPA methods, p. 365.1.
Phosphorus, total	Automated ascorbic acid method	1979 US EPA methods, p. 365.1.
Potassium, total recoverable	Digestion followed by atomic absorption	1979 US EPA methods, p. 258.1.
Sodium, total recoverable	Digestion followed by atomic absorption	1979 US EPA methods, p. 273.1.
Solids, dissolved, residue on evaporation at 180°C	Gravimetric	1979 US EPA methods, p. 160.1.
Solids, suspended, residue at 105°-110°C	Gravimetric	1979 US EPA methods, p. 160.2.
Solids, total, residue at 105°-110°C	Gravimetric	1979 US EPA methods, p. 160.3.
Solids, total, volatile on ignition	Gravimetric	1979 US EPA methods, p. 160.4.
Specific conductance	Conductivity bridge	Std. methods, p. 71.
Sulfate, dissolved	Turbidimetric	Std. methods, p. 496.
Turbidity	Nephelometric	1979 US EPA methods, p. 180.1.

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[1] "Standard methods for the examination of water and wastewater," 14th edition, American Public Health Association, American Water Works Association, and Water Pollution Control Federation, 1976.

[2] "Methods for chemical analysis of water and wastes," U.S. Environmental Protection Agency, Office of Research and Development, Environmental Monitoring and Support Laboratory, 1979.

The concentrations of the constituents listed in table 8 are highly variable, both during a single event, as well as from event to event at a given site and from site to site within Rapid City. Individual (discrete) water samples collected at a single site during runoff events represent only the concentrations present in the stream at the particular instant of sample collection, not the overall concentration for the event. While the analysis of sequential discrete samples taken over the event hydrograph provide information on the variability of that particular event, a statistic that expresses the size of an urban runoff load and that can be used to determine the constituent variability between events and sites is more useful. The statistic chosen was the event mean concentration (EMC) which is defined as the total constituent mass discharge divided by the total runoff volume (U.S. EPA, 1981). Two methods of arriving at event mean concentration are available. If sequential discrete samples were anlayzed, the event mean concentration can be calculated. However, if sequential discrete samples are discharge-composited before analysis, the resultant analysis will represent the event mean concentration. This has the advantage of sharply reducing laboratory efforts since a single sample represents the entire runoff event.

Nearly all sequential discrete samples collected during the Rapid City Urban Runoff Project and analyzed by SDSM&T were discharge composited before analysis. The ratio of the discharge volume represented by a discrete sample to the total discharge volume for the event is the percentage of the discrete sample that was used for the composite. For example, if the discharge volume represented by a discrete sample is 0.25 times the total volume, 25 percent of the composited sample consists of the discrete sample under consideration. Compositing calculations involving large numbers of discrete samples, irregular time intervals of collection, or complex runoff hydrographs can be quite tedious. To help alleviate this problem, a program was developed for a Hewlett Packard 41C hand-held calculator that determined the volume of each discrete sample which was needed to make up the composite. The discrete sample aliquotes necessary for compositing were split from the individual discrete samples by use of a cone splitter to assure accurate subsamples.

The types and amounts of water-quality data for precipitation runoff events varies between sites. This is the result of both natural processes and logistical difficulties. A rainfall event that occurred over the eastern half of Rapid City would, of course, not produce runoff at stations 1 and 2, but large volumes of runoff may have affected the flow at stations 4, 5, and 6. Sampling an event of this nature would result in data for sites 4, 5, and 6, but not for sites 1 and 2. A major logistical difficulty was the diurnal variation in the stage of Rapid Creek caused by changes in the discharge released from Pactola Reservoir and the demands of the municipal water treatment plant. This variation in stage made it unfeasible to program the automatic samplers to begin sample collection at less than about a 0.2-foot rise in stage. Runoff from smaller precipitation events often did not result in such a rise at the upstream sites, but, due to the larger contributing drainage area, would trigger the samplers at the downstream stations. Both these processes tended to result in more frequent sample collection at the lower stations, thus more data is available for stations 4 and 5 than for stations 1 and 2. However, every effort was made to keep these "incomplete" sample sets to a minimum.

Priority Pollutants

In addition to the collection and analysis of baseline and precipitation runoff water samples as described, three runoff events were sampled for the analysis of 127 of the 129 constituents listed by the U.S. EPA as priority pollutants. Asbestos and TCDD (2, 3, 7, 8 - tetrachlorodibenzo - p - dioxin) have been deleted by U.S. EPA from the list of priority pollutants to be determined for the NURP projects.

Sampling for the priority pollutants was conducted at the Rapid Creek stations 1, 3, and 5, and at station 6, Meade Street Drain. All samples were collected directly into specially prepared glass bottles following procedures outlined previously for the manual collection of samples. Three discrete samples were obtained at each site during the event, one during rising stage, one at or near the peak discharge, and one during falling stage. Discharge composited samples were made from the discrete samples for the analysis of all constituents except the volatile organics. Volatile organic pollutants were collected in special glass vials and sealed immediately to prevent volatile emissions.

Compositing was performed as soon as possible after the collection of the fina discrete sample by personnel at the SDSM&T laboratory. Samples were packed in ice and shipped immediately via air freight to Systems, Science, and Software (S ^{3}), a U.S. EPA approved laboratory in San Diego, California, for analysis. The results of the priority pollutant sampling are listed in table 17 in the supplemental informatio section at the rear of this report. Nearly all of the priority pollutants, other tha several of the heavy metals, were below detectable limits.

Quality Assurance

The water-quality data obtained during the Rapid City Urban Runoff Project will be used nationwide on a comparative basis with other NURP projects. It is therefore extremely important that the data have a high order of accuracy and reliability. During the planning stage of the project, every effort was made to implement proper procedures for both sample collection and laboratory techniques. Several project reviews took place during the study, wherein technical staff of the Geological Survey and the U.S. EPA reviewed all aspects of the data collection effort. Suggestions made during these meetings that resulted in more accurate data, but did not effect the continuity of the data, were implemented.

All manually collected water samples were obtained using depth-channel integrated methods to assure that the samples would be representative of the quality of all points across and through the depth of the channel. However, the automatic samplers used during the project obtain water samples from a single point in the stream. In so much as possible, the sample intake was located at a point in the channel where the effect of unequal mixing would be minimized. In addition, the ability of the automatic sampler system to collect representative samples was checked several times during the project. The procedure was to simultaneously obtain both manually collected depth-channel integrated and automatically collected samples at sites with automatic samplers. These paired samples were then analyzed for suspended solids and volatile suspended solids. The results of the representativeness testing is listed in table 9.

Table 9.—Laboratory analysis used to test the representativeness of automatically collected samples

Streamflow-monitoring station	Date	Time	Discharge (ft^3/s)	Solids, suspended (mg/L)		Solids, volatile suspended (mg/L)	
				Automatically collected (point source)	Manually collected (depth-channel integrated)	Automatically collected (point source)	Manually collected (depth-channel integrated)
Rapid Creek at Rapid City (site 3)	05-13-82	0800	92	83	93	12	12
	05-13-82	0830	103	115	131	16	16
	05-13-82	0900	89	112	114	13	16
	05-13-82	1000	74	109	117	16	14
	05-14-82	1400	119	126	142	16	16
	05-28-82	1415	169	470	544	52	53
	05-28-82	1450	151	1,230	1,405	102	106
	05-28-82	1545	92	609	566	52	48
	05-28-82	1615	81	418	411	38	36
Rapid Creek at East Main Street (site 4)	05-13-82	1120	137	240	236	27	26
	05-13-82	1245	155	261	216	28	25
	05-13-82	1440	130	208	195	24	22
	05-28-82	1355	238	1,470	1,435	131	128
	05-28-82	1435	155	807	693	76	71
	05-28-82	1520	152	554	523	60	58
	05-28-82	1635	92	766	753	68	66
Rapid Creek below Hawthorne Ditch (site 5)	05-13-82	0850	137	350	277	30	22
	05-13-82	0920	118	285	283	34	35
	05-13-82	0950	103	288	274	40	33
	05-13-82	1020	92	234	250	32	32
	05-28-82	1420	298	1,105	1,215	100	104
	05-28-82	1455	278	1,160	1,140	109	106
	05-28-82	1535	189	988	968	97	92
Meade Street Drain (site 6)	05-14-82	1050	39	2,100	2,320	166	160
	05-14-82	1230	46	1,670	1,740	136	144
	05-14-82	1410	20	854	823	68	64
	05-28-82	1335	117	4,635	4,685	390	400
	05-28-82	1400	89	2,515	2,525	238	216
	05-28-82	1435	40	1,405	1,300	136	118

The two Hydrolab instruments used during the project were calibrated weekly to document the drift in calibration over time. Ideally, the instruments would be calibrated before each use, and they were, during the collection of baseline samples. However, due to the time limitation involved in sampling short duration runoff events, the instruments were normally not calibrated before storm sampling. Table 10 presents a summary of calibration data for the Hydrolab used during the study. The accuracy of the field parameter measurements can only be assured within the limits presented in this table. After the end of the data-collection effort in July 1982, an operating problem in the pH function of all Hydrolab model 4041 units was discovered. Testing conducted in early 1983 indicates that although these units calibrate properly in buffer solutions, they may yield inaccurate measurements of test solutions. The problem is apparently greater in waters of low ionic strength. As a result of this manufacturing defect, some of the field pH measurements made during the study may fall outside the limits shown in table 10. The extent and magnitude of the pH measurement problem has not been determined at the present time (March 1983). However, field pH values presented in table 13 should be used with some caution.

Table 10.—Summary of calibration data for Hydrolab instruments used for field parameter measurement during the Rapid City Urban Runoff Project

	Field parameter	Accepted deviation[1]	Number of calibrations	Number of instances outside accepted deviation	Range of applied corrections	Mean of applied corrections
Hydrolab unit W381858	Temperature	± 0.3°C	20	0	--	--
	Specific conductance	± 3%	64	9	+ 7.5% - 7.7%	- 0.4%
	pH	± 0.1 unit	64	22	+ 0.4 unit - 0.4 unit	+ 0.08 unit
	Dissolved oxygen	± 0.3 mg/L	76	24	+ 1.7 mg/L - 1.2 mg/L	+ 0.05 mg/L
Hydrolab unit W383625	Temperature	± 0.3°C	16	0	--	--
	Specific conductance	± 3%	47	12	+ 5.6% - 5.6%	+ 0.6%
	pH	± 0.1 unit	47	8	+ 0.4 unit - 0.4 unit	+ 0.02 unit
	Dissolved oxygen	± 0.3 mg/L	64	22	+ 1.0 mg/L - 0.9 mg/L	+ 0.01 mg/L

[1] Manufacturer's specifications.

The SDSM&T laboratory implemented a comprehensive quality assurance program. The QW program included, but was not limited to:

1. Assurance that all elements of the sample collection, sample handling, and analytical procedures conformed with U.S. EPA quality control and methodology guidelines.
2. Measuring the precision and accuracy of the analytical data using reference samples, duplicates, spikes, and audit samples. Reference and audit samples were obtained from the U.S. EPA.
3. Use of precision and accuracy control charts to insure that the analytical procedures were in control throughout the study.

Tables 11 and 12 present the analytical results of the quality assurance program. Table 11 lists the precision of the analytical data determined by duplicate analysis. Table 12 lists the accuracy of the analytical data as determined by analysis of U.S. EPA reference samples.

Table 11.—Precision of laboratory analysis conducted by the South Dakota School of Mines and Technology (Data from routinely analyzed sample duplicates between May 1980-April 1981)

Constituent	Units measurement	Range of measurement	Average range of duplicate analysis	Number of replicates
Alkalinity	mg/L as $CaCO_3$	50-100	1.1	13
		101-270	1.9	9
Biochemical oxygen demand, five-day, carbonaceous	mg/L	0-50	1.2	18
Biochemical oxygen demand, ultimate, carbonaceous	mg/L	10-50	7	1
Calcium, total recoverable	mg/L	45-200	2.8	6
		201-400	4.6	5
Chemical oxygen demand	mg/L	0-50	1.9	25
		51-500	4.7	11
Chloride, dissolved	mg/L	0-10	.22	27
		10.1-100	.45	10
Coliform, fecal[1/]	colonies per 100 mL	0-60	3.7	19
		61-170	21	5
Lead, total recoverable	ug/L	0-50	4.6	7
		200-500	36	6
Magnesium, total	mg/L	10-50	.34	11
Nitrogen, ammonia plus organic, total	mg/L as N	0-1.0	.03	12
		1.01-10	.14	13
Nitrogen, ammonia	mg/L as N	0-0.6	.007	27
Nitrogen, nitrite plus nitrate, dissolved	mg/L as N	0-0.5	.010	23
		0.51-2.0	.013	6
pH	Units	7.4-9.5	.05	32
Phosphorus, dissolved	mg/L as P	0-0.10	.006	27
Phosphorus, total	mg/L as P	0-0.50	.008	24
		1.0-3.0	.07	3

Table 11.--Precision of laboratory analysis conducted by the South Dakota School of Mines and Technology (Data from routinely analyzed sample duplicates between May 1980-April 1981)--Continued

Constituent	Units measurement	Range of measurement	Average range of duplicate analysis	Number of replicates
Potassium, total recoverable	mg/L	2.5-30	0.43	13
Sodium, total recoverable	mg/L	3.0-16.0	.16	17
Sodium, dissolved	mg/L	4.0-40.0	.13	7
Solids, dissolved, residue on evaporation at 180°C	mg/L	100-500	6	12
		501-3,000	17	9
Solids, suspended, residue at 105°-110°C	mg/L	0-100	5.3	42
		101-1,000	7.2	72
		1,001-7,000	57	28
Solids, total, residue at 105°-110°C	mg/L	200-1,000	17	59
		1,001-10,000	28	16
Solids, total, volatile on ignition	mg/L	0-100	3.8	93
		101-600	11	21
Specific conductance	umhos/cm at 25°C	200-1,200	3.1	35
Sulfate, dissolved	mg/L	50-500	2.8	11
		1,000-2,000	59	4
Turbidity	NTU (Nephelometric turbidity unit)	0-25	.3	15
		26-100	2.7	10
		101-400	7.7	14

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[1] Range of measurement data based on plate count rather than report values.

Table 12.—Accuracy of laboratory analysis conducted by the South Dakota School of Mines and Technology
(Data based on the analysis of U.S. Environmental Protection Agency quality control samples)

Constituent	Units	Accepted value[1]	Number of analyses	Average reported value	Percent bias	Standard deviation
Alkalinity	mg/L	16.0	7	15.3	-4.4	1.08
		73.7	7	71.7	-2.7	2.03
Biochemical oxygen demand, five-day, carbonaceous	mg/L	2.4	4	2.4	0	.29
		100.6	4	105	+4.4	30.8
Calcium, total recoverable[2]	mg/L	6.7	10	6.4	-4.5	.25
		32.0	11	31.3	-2.2	.80
Chemical oxygen demand	mg/L	10.4	8	8.8	-15.4	1.0
		192.7	8	188	-2.4	4.3
Chloride, dissolved	mg/L	20.5	7	19.9	-2.9	.88
		70.2	7	69.4	-1.1	.85
Lead, dissolved	mg/L	18	10	14.6	-18.9	2.8
		80	10	75.4	-5.8	7.3
		250	10	256	+2.4	37
Magnesium, total recoverable[2]	mg/L	2.4	10	2.36	-1.7	.07
		7.1	10	6.99	-1.6	.10
Nitrogen, ammonia plus organic, dissolved	mg/L	.52	12	.48	-7.7	.049
		4.12	11	4.15	+.7	.22
Nitrogen, ammonia, dissolved	mg/L	.19	15	.20	+5.3	.12
		1.3	14	1.36	+4.6	.094
Nitrogen, nitrite plus nitrate, dissolved	mg/L	.31	10	.31	0	.07
		1.59	9	1.60	+.6	.12

Table 12.—Accuracy of laboratory analysis conducted by the South Dakota School of Mines and Technology (Data based on the analysis of U.S. Environmental Protection Agency quality control samples)—Continued

Constituent	Units	Accepted value[1]	Number of analyses	Average reported value	Percent bias	Standard deviation
Oil and grease	mg/L	12	9	13.1	+10.8	1.1
		20	9	19.6	-2.0	1.2
Phosphorus, dissolved	mg/L	.14	21	.126	-10.0	.01
		.93	21	1.0	+7.5	.06
Potassium, total recoverable[2]	mg/L	1.7	10	1.72	+1.2	.02
		7.2	10	7.20	0	.17
Sodium, total recoverable[2]	mg/L	7.0	7	6.91	-1.3	.085
		40.0	6	39.4	-1.5	.57
Solids, dissolved, residue on evaporation at 180°C	mg/L	66	7	73	+10.6	8.4
		277	7	294	+6.1	24
Solids, suspended, residue at 105°-110°C	mg/L	29.1	5	32.4	+11.3	1.9
		156	10	164	+5.1	12
		534	11	540	+1.1	28
Solids, total, volatile on iginition	mg/L	44.3	10	48.5	+8.3	6.0
		296	11	304	+2.7	26
Specific conductance	µmhos/cm at 25°C	125	9	131	+4.8	5.2
		479	9	491	+2.5	29
Sulfate, dissolved	mg/L	12.0	9	11.5	-4.2	.41
		75.0	10	74.8	-.3	1.4

[1] Determined by U.S. Environmental Protection Agency.

[2] Digestion step included in analysis procedure, sample did not contain any visible particulate matter.

ATMOSPHERIC DEPOSITION DATA

Data on the quality of precipitation is useful for geochemical studies on urban basins. Both wetfall (rain and snow) and dryfall (particulates and aerosols) supply large fluxes of many chemical constituents with which urban runoff studies are concerned. An understanding of the relative magnitude of precipitation inputs to runoff loads is necessary to develop theoretical input-output models of studied basins. The atmospheric deposition sampling program was designed to determine if precipitation inputs are of sufficient magnitude to account for a significant amount of the measured runoff load.

Atmospheric deposition samples were collected at two sites in Rapid City during 1981-1982. These sites, West Rapid at Sioux Park (site 3), and East Rapid at Lombardy Park (site 10), are shown on plate 1. Each site was equipped with a Weathermeasure Tipping bucket rain gage with windshield, a Fisher-Porter digital recorder for recording rainfall data, and an Aerochem Metrics Model 301 sampler on a wooden pedestal. The top of the rain gage was about 6 feet above the ground. The top of the atmospheri sampler was about 7 feet above the ground. To prevent vadalism, the equipment was surrounded by a six-foot high chain-link fence with barbed wire top.

The Aerochem Metrics Model 301 sampler consists of two polyethylene collector buckets and a mechanical lid which acts as cover for one of the two collector buckets. During dry periods, the lid covers the precipitation collector while leaving the dry deposition collector open to atmospheric inputs. When precipitation begins, sensed by an electrified grid, the sampler opens the precipitation collector and simultaneously closes the dry deposition collector. After precipitation ceases, the heated grid dries, breaks the circuit, and the mechanism reverses and opens the dry deposition collector while closing the precipitation collector.

The West Rapid at Sioux Park site was located in a maintained city park. The area surrounding the sampler was completely covered by thick, lawn type grass. The nearest paved surface was a concrete bike path about 100 yards to the north. The nearest roads with regular vehicular traffic were over 200 yards from the sampler to the west and north. A number of large trees, mostly cottonwoods, were located between 75 and 150 yards to the west and north of the sampler. Only one object, a pole erected to bring power to the site, protruded above a line-of-sight projected at an angle of 30 degrees above the horizontal. Major sources which may have affected precipitation chemistry at this site were a cement plant located 1.2 miles to the north, and several open-pit limestone quarries located between 1.5 and 3 miles to the north and northwest.

The East Rapid at Lombardy Park site was located at the edge of a lig park. The area surrounding the sampler was spottily covered with native gra weeds. The nearest road with regular vehicular traffic was about 100 yards to the northwest. During the first six months of operation, this road was the nearest source of localized pollution. However, during November 1981, a small frozen-food warehouse was erected about 75 yards to the northwest of the sampler. A graveled parking lot encircled the warehouse and was about 50 yards from the sampler to the north and northwest. The refrigeration units at the warehouse and vehicular traffic on the parking lot may have had some effects on the chemistry of precipitation at this site. Other operations at the industrial park were thought not to have anomalous effects due to their distance from the sampler, 300 to 1,000 yards to the north and northwest, and the types of operations, warehouses, auto repair shops, and small commercial business. Large cottonwood trees were located about 150 yards to the east of the sampler. As was the case at the West Rapid site, only a power pole protruded above the 30-degree line-of-site angle. The only major source which may have affected precipitation chemistry at this site.was a large sod farm located about 1,000 yards to the northwest.

Atmospheric-deposition samples were collected on a fixed-interval basis. Rainfall samples were collected monthly except during the winter months while dryfall samples were collected once every two months. The time-composited samples were collected from the field by replacing the exposed collector buckets with clean buckets. This collection always took place the first Tuesday of the month. The exposed collector buckets were transported directly to the laboratory at the SouthDakota School of Mines and Technology for sample processing.

Rainfall samples were first weighted to determine the volume collected over the sampling interval and then split into subsample bottles required for laboratory analysis including an extra bottle for field measurement of pH and conductivity. The cone splitter was not used for splitting of the rainfall samples due to both the low amount of particulate matter in the samples and the possibility of contamination of the low ionic strength sample. The samples were rapidly stirred with a glass rod and then pored quickly through a glass funnel into subsample bottles. Dryfall samples were first weighed if any accidental wetfall was present in the bucket. Small amounts of snow, less than 10 mL of water equivalent, were present in the October-November 1981 and the December-January 1982 samples collected at West Rapid at Sioux Park. About 2 liters of reagent grade distilled water was then added to the dryfall buckets. After leaching for 24 hours, the dry deposition sample was removed from the bucket by alternately scrubbing the walls and bottom of the collector with a clean plastic spatula and sequentially rinsing with small volumes of reagent grade distilled water. The cone splitter was used for splitting of the dryfall samples into subsample bottles required for field measurements and laboratory analysis.

Measurements of specific conductance were made with a Yellow Springs Instrument Company Model 32FL conductance meter equipped with glass conductivity cell with a cell constant of K = 1.0/cm. Although the instrument can be temperature compensated, conductance measurements were made only after the sample was brought to 25°C. The meter-cell combination was frequently checked against a 17 micromhos/cm^2 standard and was found to be accurate to within 1 micromho.

Measurements of pH were made with an Orion model 701A digital display pH meter equipped with an Orion Model 91-62 research grade combination electrode. The instrument was calibrated before use with pH 4.0, 7.0, and 10.0 buffers and checked after use with pH 7.0 buffer. Calibration and measurements were made with the buffers and sample at 25°C. The sample was continuously stirred during measurement and at least 15 minutes was allowed for probe equilibration.

Chemical analysis of the atmospheric deposition samples was done by the Geological Survey Central Laboratory at Lakewood, Colorado. Samples were preserved following standard Survey methods for water samples. Subsamples designated for nutrient analysis were placed in opaque bottles, preserved with mercuric chloride and chilled to and maintained at 4°C. Subsamples designated for anion and trace metal analysis were placed into acid-rinsed bottles and preserved with 2 milliliters of ultrapure nitric acid per 500 milliliters of sample.

Tables 13 and 14 list the results of the atmospheric deposition sampling program. Along with the individual constituent values, means and standard deviations are also listed for each data set. The dryfall constituent concentrations listed in table 14 have been converted from raw laboratory data to a more useful form, the mass of constituent per mass of total dry deposition. These concentrations were computed as follows:

$$Mxi = \frac{Cxi}{TSi} \times K \tag{1}$$

where

Mxi = mass of constituent X in sample i,

Cxi = concentration of constituent X in sample i,

TS_i = total solids concentration in sample i, and

K = constant to convert units to ug/Kg and mg/Kg.

The number of analyzed constituents varied for rainfall samples based on the volume of sample obtained during the month. Two dryfall samples were lost from East Rapid at Lombardy Park due to vandalism. Data from a third sample from this site are not listed because the analysis of total solids is thought to be inaccurate.

Table 13.—Individual chemical analysis and statistical summaries of monthly composited rainfall samples

Collection period Begin	Collection period End	Sample volume (mL)	Field conductivity (umhos/cm at 25°C)	Laboratory conductivity (umhos/cm at 25°C)	Field pH (units)	Laboratory pH (units)	Total solids (mg/L)	Total calcium (mg/L)	Total magnesium (mg/L)	Total potassium (mg/L)	Total sodium (mg/L)	Alkalinity total (mg/L)	Nitrogen NH_4+ORG total (mg/L)	Nitroge NH_4 total (mg/L)
West Rapid at Sioux Park														
05-04-81	06-02-81	8,230	14	14	6.5	6.7	32	1.7	0.1	0.1	[1] 0.1	12	0.68	0.427
06-02-81	07-07-81	2,900	42	39	8.1	7.0	—	—	—	—	—	18	.82	.103
07-07-81	08-04-81	7,260	6	7	6.2	6.5	8	.4	0	0	0	12	.57	.317
08-04-81	09-01-81	1,300	12	16	6.7	6.5	12	—	—	—	—	8	1.1	.427
09-01-81	10-06-81	1,550	32	26	6.5	6.9	39	3.8	.2	0	.3	1	1.1	.742
04-07-82	05-04-82	395	30	—	6.5	—	—	—	—	—	—	—	.86	.537
05-04-82	06-01-82	9,400	6	7	5.3	—	5	.8	.1	.1	.8	7	.80	.288
06-01-82	07-06-82	6,085	11	13	6.1	7.7	13	1.4	.2	.2	.1	9	1.6	.417
07-06-82	08-04-82	7,000	12	15	6.8	7.5	18	2.1	.1	.3	.2	31	1.1	.342
Mean		—	18.3	17.1	—	—	18.1	1.7	.1	.1	.26	12.2	.96	.400
Standard deviation		—	12.9	10.6	—	—	12.7	1.2	.08	.12	.33	9.0	.31	.176
East Rapid at Lombardy Park														
05-04-81	06-02-81	5,180	10	11	5.2	6.0	34	.6	.1	.1	—	31	.88	.477
06-02-81	07-07-81	2,670	9	10	7.4	6.1	—	—	—	—	—	0	1.0	.159
07-07-81	08-04-81	7,550	6	8	5.5	5.9	8	.1	.0	.0	.0	2	.67	.342
08-04-81	09-01-81	1,505	9	11	6.3	6.1	16	—	—	—	—	2	.92	.377
09-01-81	10-06-81	1,300	17	15	6.0	6.5	18	1.1	.2	.0	.2	1	1.6	1.00
04-07-82	05-04-82	420	17	—	6.0	—	—	—	—	—	—	—	.92	.662
05-04-82	06-01-82	8,700	4	4	5.4	5.9	3	.3	.1	.1	.8	7	1.0	.257
06-01-82	07-06-82	4,125	10	13	6.1	8.0	12	1.0	.2	.2	<.1	9	3.0	.536
07-06-82	08-04-82	6,040	9	10	6.7	7.2	11	1.0	.1	.2	.2	6	1.2	.498
Mean		—	10.1	10.2	—	—	14.6	.68	.1	.1	.24	7.2	1.24	.479
Standard deviation		—	4.37	3.28	—	—	9.90	.42	.08	.09	.33	10.1	.71	.247

[1] Not used in calculation of summary statistics.

collected at two sites in Rapid City between May 1981 and August 1982

n	Nitrogen NO_2+NO_3 total (mg/L)	Ortho-phosphorus total (mg/L)	Phosphorus total (mg/L)	Cadmium total recovered (ug/L)	Chromium total recovered (ug/L)	Copper total recovered (ug/L)	Iron total recovered (ug/L)	Lead total recovered (ug/L)	Nickel total recovered (ug/L)	Silver total recovered (ug/L)	Zinc total recovered (ug/L)
	0.277	0.005	0.006	—	3	2	—	5	0	0	—
	.207	.002	.001	—	4	3	—	6	1	0	—
	.224	.000	.012	0	4	3	130	12	3	0	10
	.178	.012	.014	—	12	3	—	4	—	—	10
	.431	.001	.012	0	7	10	480	10	1	0	10
	.437	.012	.026	—	—	—	—	—	—	—	—
	.146	.003	.008	<1	4	2	30	<1	<1	<1	10
	.230	.009	.026	<1	4	3	90	<1	11	1	10
	.265	.007	.007	<1	5	3	190	3	4	<1	20
	.266	.006	.012	<1	5.4	3.6	184	5.0	2.8	<1	12
	.103	.005	.009	—	2.9	2.6	175	4.3	3.9	—	4
	.222	.002	.006	—	2	2	—	5	0	0	—
	.214	.001	.001	—	4	4	—	5	1	0	—
	.242	.000	.014	0	5	4	130	2	3	1	10
	.156	.006	.005	—	15	4	—	3	—	—	10
	.522	.003	.016	<1	8	16	330	6	1	<1	40
	.448	.014	.039	—	—	—	—	—	—	—	—
	.147	.003	.005	<1	10	3	10	2	1	1	10
	.340	.027	.026	<1	5	2	210	3	6	<1	10
	.290	.008	.010	<1	3	4	170	4	7	<1	10
	.287	.007	.014	<1	6.5	4.9	170	3.8	2.7	<1	15
	.129	.009	.012	—	4.3	4.6	117	1.5	2.8	—	12

Table 14.—Individual chemical analysis and statistical summaries of bi-monthly composited dryfall sam

Collection period		Volume dilution water (mL)	Field conductivity (µmhos/cm at 25°C)	Laboratory conductivity (µmhos/cm at 25°C)	Field pH (units)	Laboratory pH (units)	Total solids (mg)	Calcium (mg/kg)	Magnesium (mg/kg)	Potassium (mg/kg)	Sodium (mg/kg)	Alkalinity (mg/kg)	Nitrogen NH_4+ORG (mg/kg)
Begin	End												
													West Rapid at Sioux Park
04-07-81	06-02-81	2,152	97	106	9.1	8.3	807	190,000	5,300	4,000	1,600	130,000	—
06-02-81	08-04-81	2,225	56	78	8.4	7.6	365	180,000	9,100	6,700	1,800	200,000	12,000
08-04-81	10-06-81	2,133	74	80	8.9	8.7	429	220,000	7,000	3,000	2,500	240,000	4,600
10-06-81	12-01-81	1,775	103	101	7.9	8.7	238	400,000	9,000	12,000	4,500	400,000	3,300
12-01-81	02-02-82	2,325	72	98	8.4	—	232	280,000	6,000	6,000	6,000	320,000	4,800
02-02-82	04-07-82	2,025	65	77	7.6	8.5	234	210,000	5,200	4,300	5,200	320,000	3,500
04-07-82	06-01-82	1,928	64	77	6.5	5.3	240	210,000	9,100	6,600	9,100	240,000	9,900
06-01-82	08-03-82	1,756	86	103	7.4	8.8	499	230,000	5,900	8,300	2,400	480,000	11,000
Mean		—	—	—	—	—	380	240,000	7,070	6,360	4,130	291,000	7,010
Standard deviation		—	—	—	—	—	200	71,300	1,730	2,850	2,590	112,000	3,780
													East Rapid at Lombardy Park
04-07-81	06-02-81	2,201	46	55	8.3	7.8	600	59,000	5,100	4,400	1,500	110,000	—
06-02-81	08-04-81	2,153	42	72	7.3	7.1	320	88,000	8,100	15,000	670	110,000	42,000
08-04-81	10-06-81	2,193	36	70	8.1	7.8	309	110,000	5,700	2,800	2,800	240,000	5,100
06-06-81	12-01-81	2,266	32	40	7.5	8.9	2/ 88	—	—	—	—	—	—
12-01-81	02-02-82	3/ —	—	—	—	—	—	—	—	—	—	—	—
02-02-82	04-07-82	3/ —	—	—	—	—	—	—	—	—	—	—	—
04-07-82	06-01-82	2,047	29	45	6.7	8.4	151	15,000	8,100	8,100	28,000	270,000	11,000
06-01-82	08-02-82	2,347	41	62	7.4	7.5	371	89,000	4,400	8,200	1,900	270,000	25,000
Mean		—	—	—	—	—	306	72,200	6,280	7,700	6,970	200,000	12,600
Standard deviation		—	—	—	—	—	180	36,700	1,720	4,700	117,000	63,000	19,600

1 ND, Not detected.
2 Chemical analysis thought to be incorrect. Dryfall data not calculated for this sample.
3 Sample lost due to sampler malfunction.

ples collected at two sites in Rapid City between May 1981 and August 1982

Nitrogen NH$_4$ (mg/kg)	Nitrogen NO$_2$+NO$_3$ (mg/kg)	Ortho-phosphorus (mg/kg)	Phosphorus (mg/kg)	Cadmium[1/] (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Silver[1/] (mg/kg)	Zinc (mg/kg)
240	1,900	110	—	—	29	27	—	83	11	ND	—
2,100	4,100	670	1,800	ND	61	49	12,000	130	24	6	180
650	2,700	200	750	ND	50	65	11,000	160	15	ND	250
1,200	4,100	370	370	ND	52	60	14,000	230	75	ND	220
1,000	1,900	400	100	ND	70	80	8,500	220	10	ND	300
860	2,200	260	170	9	61	35	7,500	200	26	ND	—
1,300	4,200	330	1,200	ND	24	80	13,000	140	32	ND	160
630	2,400	950	1,600	ND	40	40	12,000	100	40	ND	—
998	2,940	411	841	—	48	54	11,000	158	29	—	220
360	1,020	274	707	—	16	20	2,360	54.6	21	—	56
440	2,700	150	—	—	29	29	—	88	11	ND	—
3,000	4,000	670	5,600	ND	60	67	12,000	121	27	7	270
850	3,600	280	850	ND	71	64	11,000	170	28	ND	210
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
1,900	5,400	270	1,200	ND	81	190	15,000	190	41	14	410
760	5,300	1,300	2,800	ND	38	44	7,000	120	13	ND	190
1,390	4,200	534	2,610	—	56	79	11,200	138	24	—	270
10	1,150	471	2,160	—	22	64	3,300	41.4	12	—	99

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SUPPLEMENTAL INFORM

Figures 13-40.--Graphs showing dis and runoff volume at the six streamflo toring stations in Rapid City for investi runoff events. Runoff events 10-22 (figu 4) and 33 (figure 40) include discharge Hawthorn Ditch as shown by dashed line on Site 5 hydrographs.

Table 15.--Summary of discharge data measured at streamflow-monitoring stations in Rapid City for investigated events.

Table 16.--Physical, chemical, and sediment data for baseline, and investigated runoff events collected at the six streamflow-monitoring stations in Rapid City between May 1980 and July 1982.

Table 17.--Laboratory analysis of priority pollutant samples collected at four streamflow-monitoring stations in Rapid City on October 15, 1980, October 5, 1981, and May 17, 1982.

EXPLANATION OF HEADING INFORMATION

UNITS:

DEG C = Degrees Celsius
MG/L = Milligrams per liter
UG/I = Micrograms per liter
COL. PER 100 ML = Colonies per 100 milliliters
NTU = Nephelometric turbidity unit
< = Less than
> = Greater than

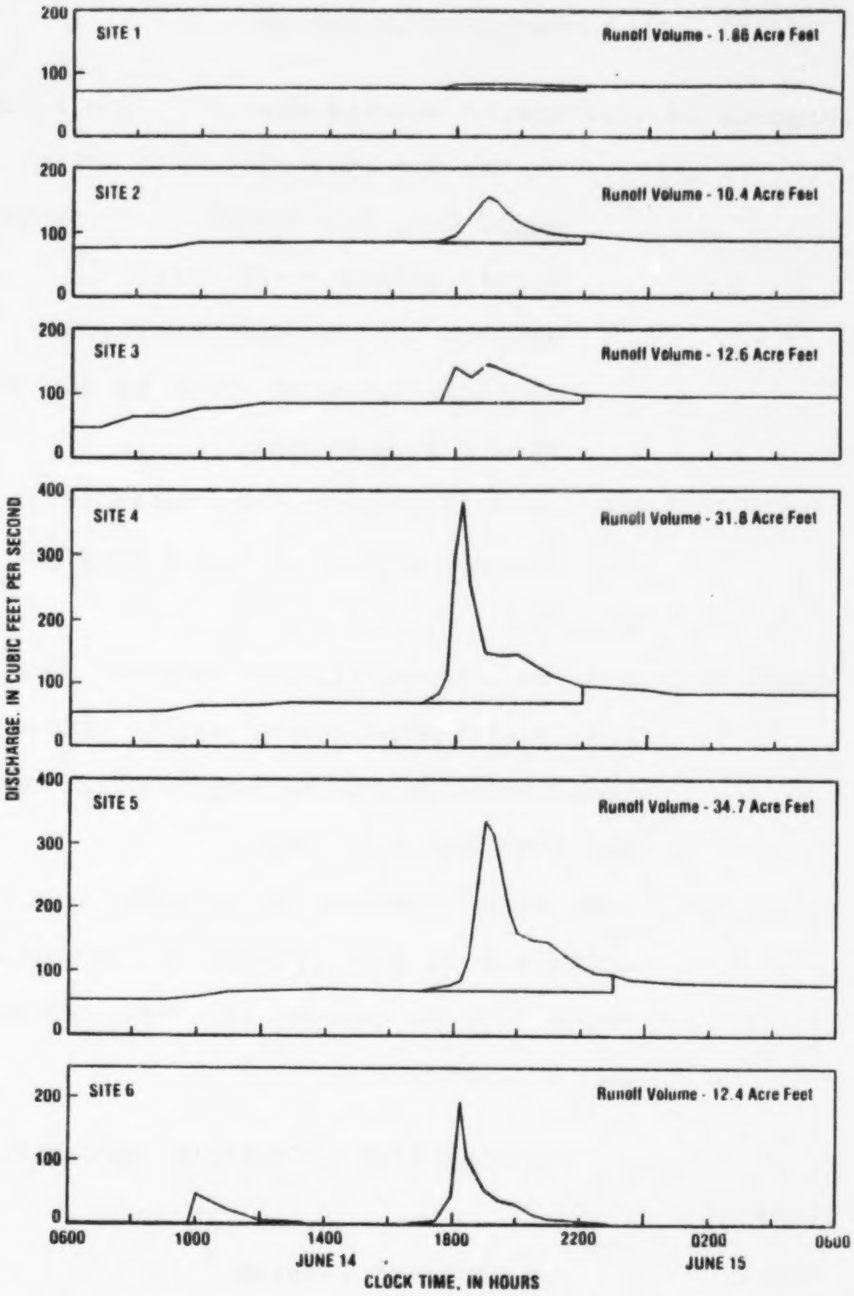

Figure 13.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 1, June 14, 1980.

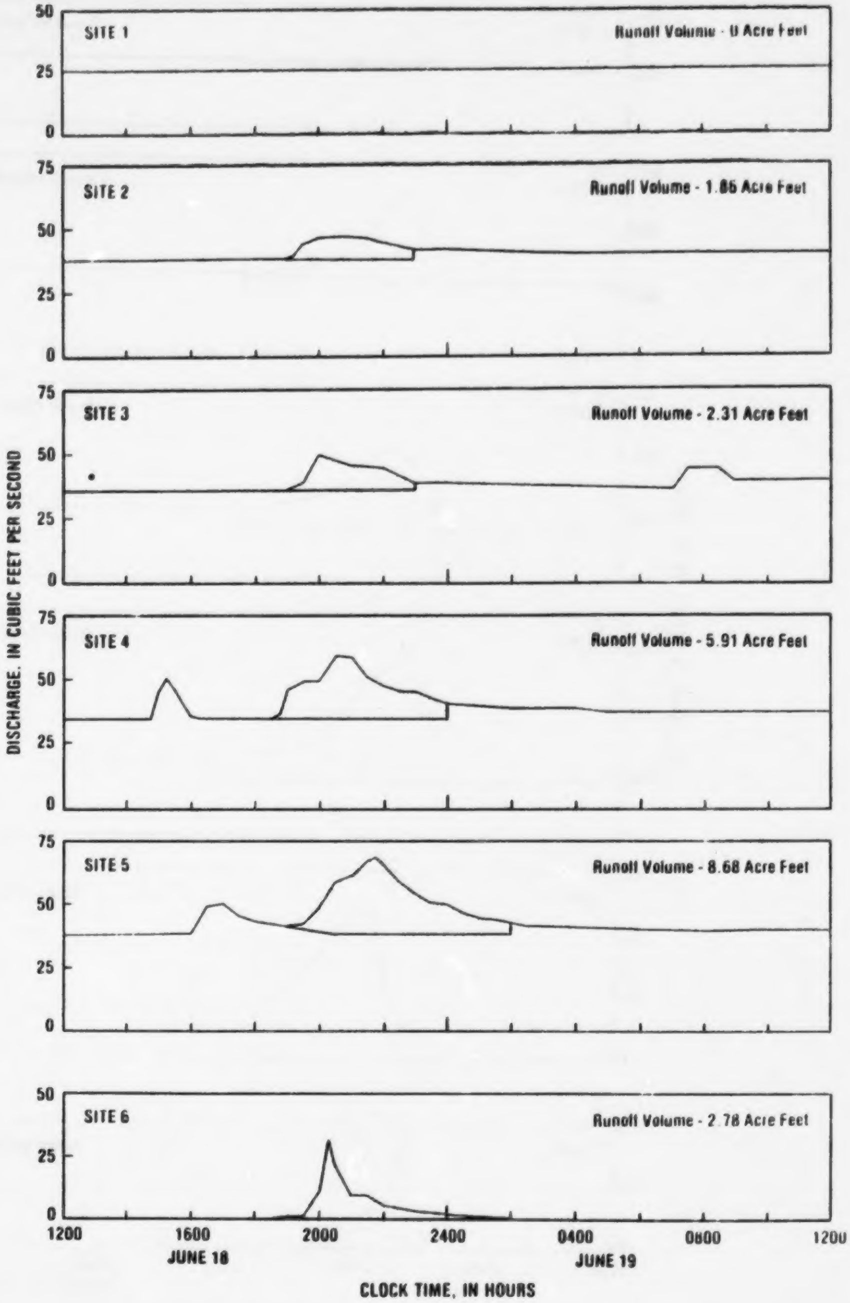

Figure 14.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 2, June 18, 1980.

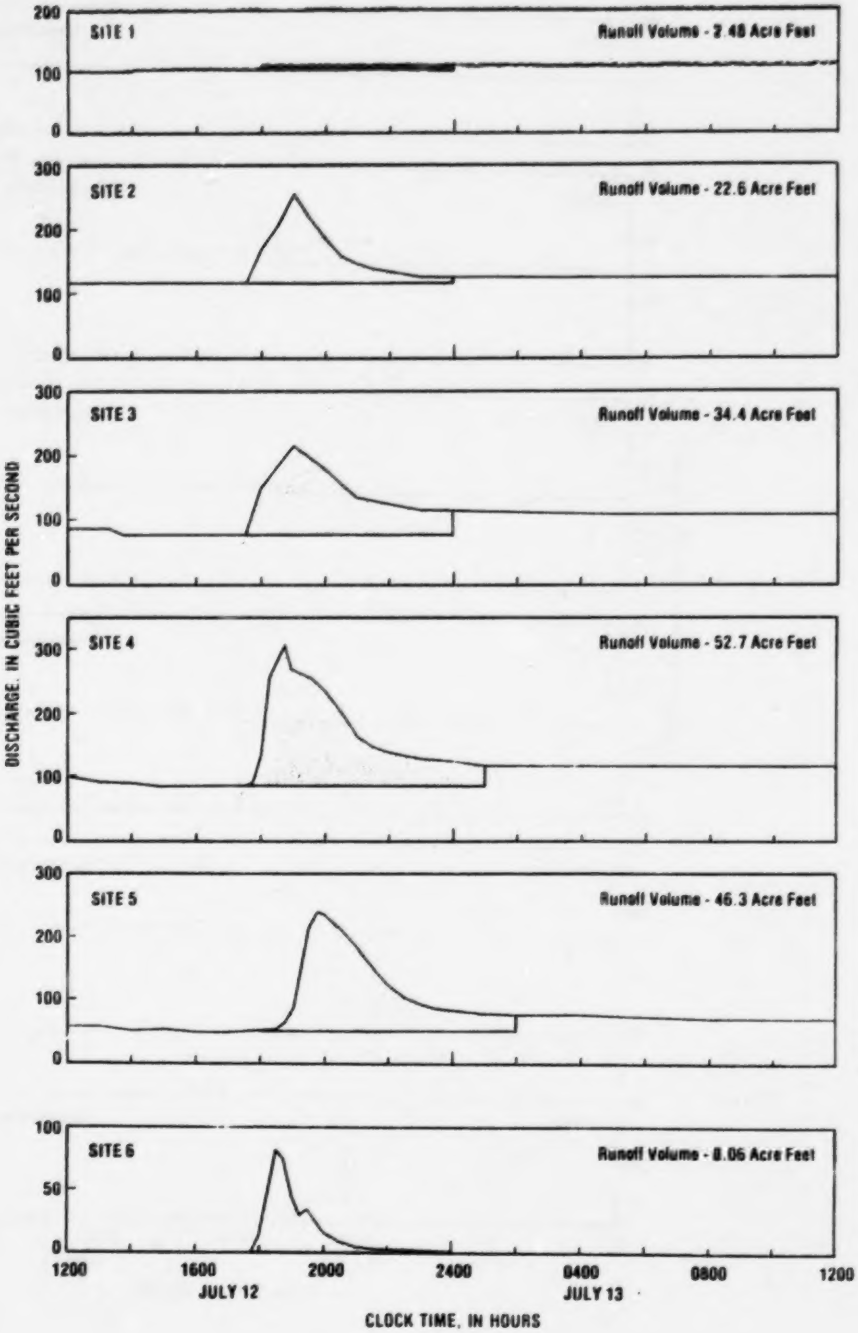

Figure 15.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 3, July 12, 1980.

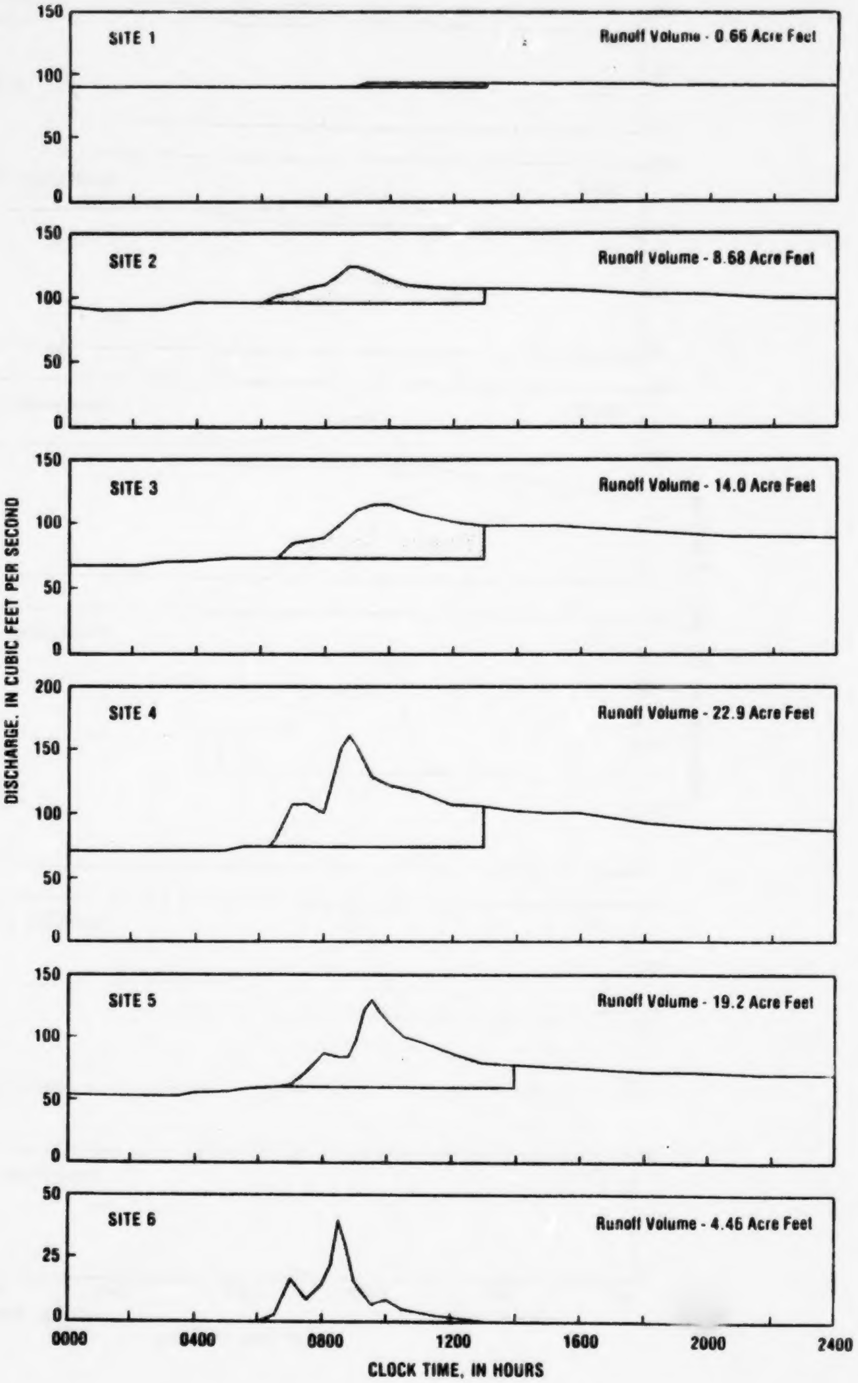

Figure 16.--Discharge hydrographs and runoff volumes at six streamflow-monitoring stations in Rapid City for investigated runoff event number 4, July 20, 1980.

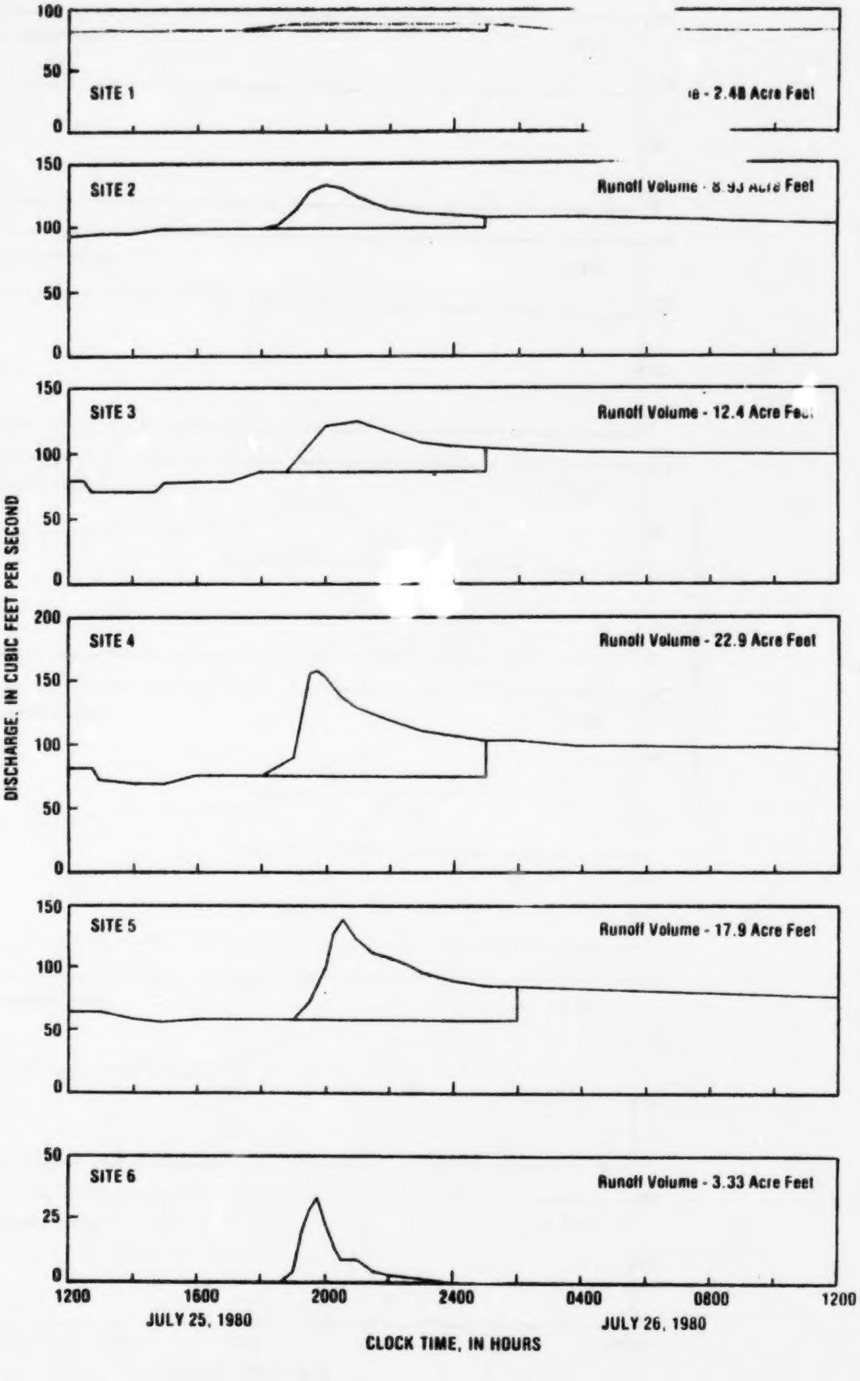

Figure 17.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 5, July 25, 1980.

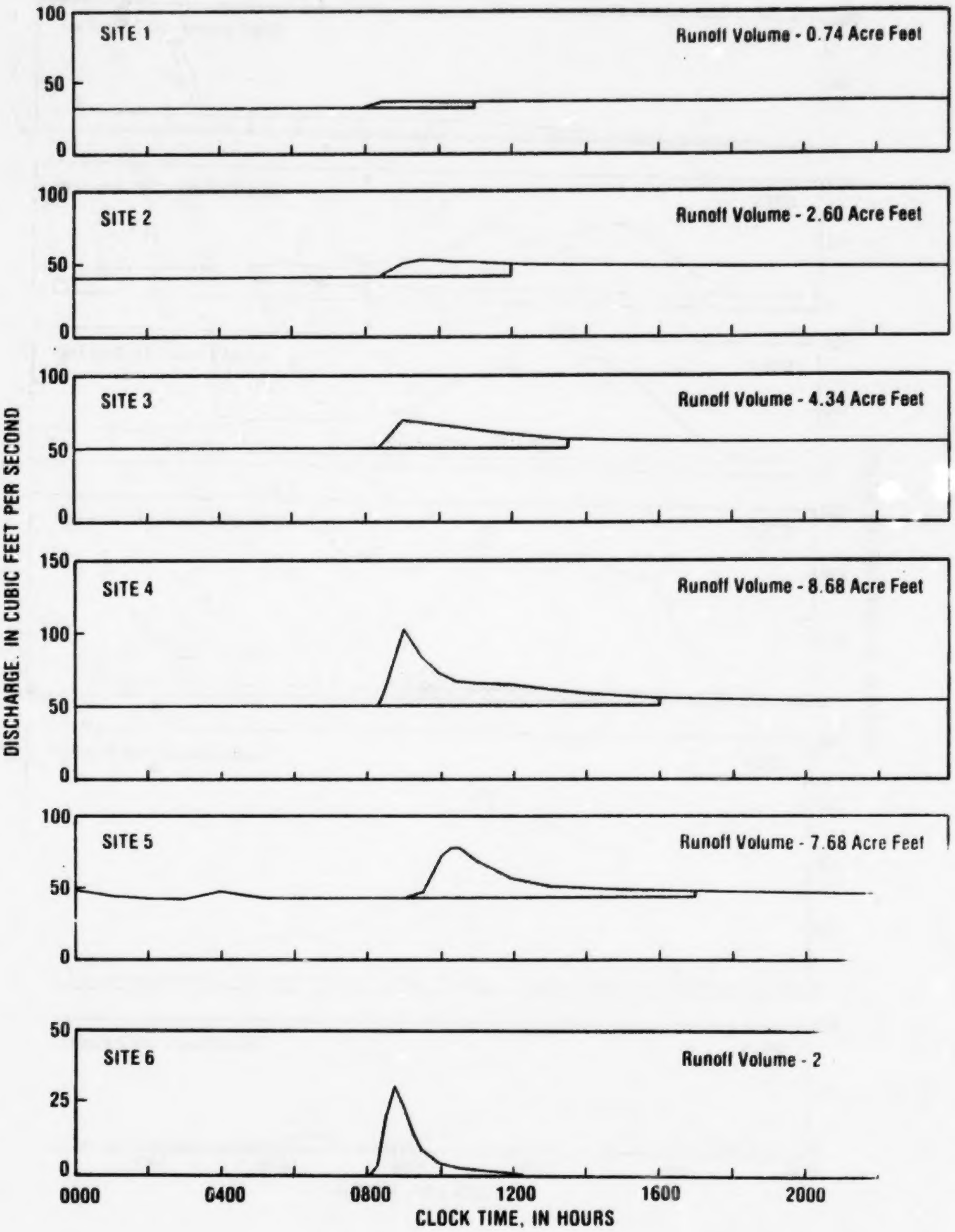

Figure 18.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 6, August 20, 1980.

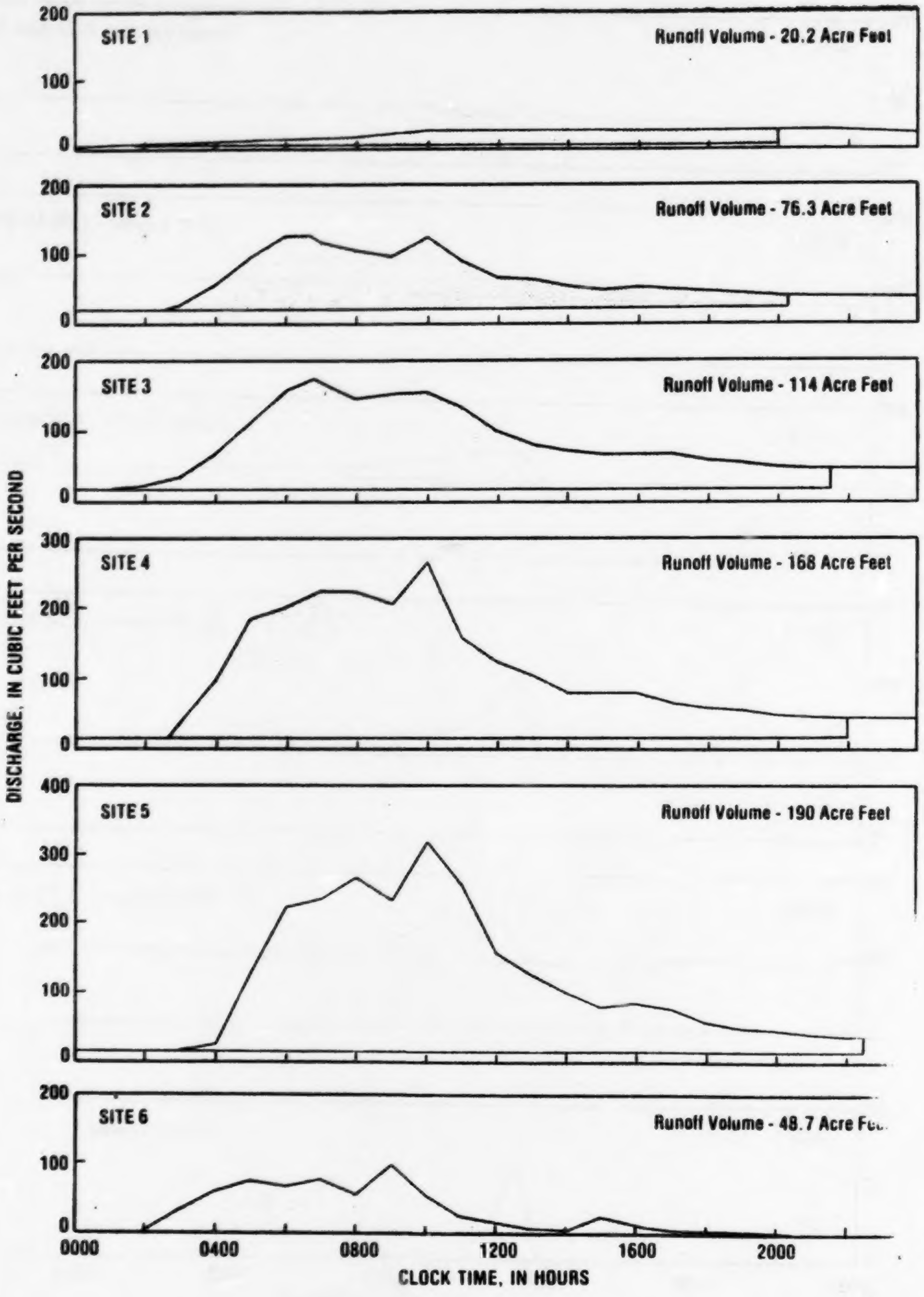

Figure 19.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 7, October 15, 1980.

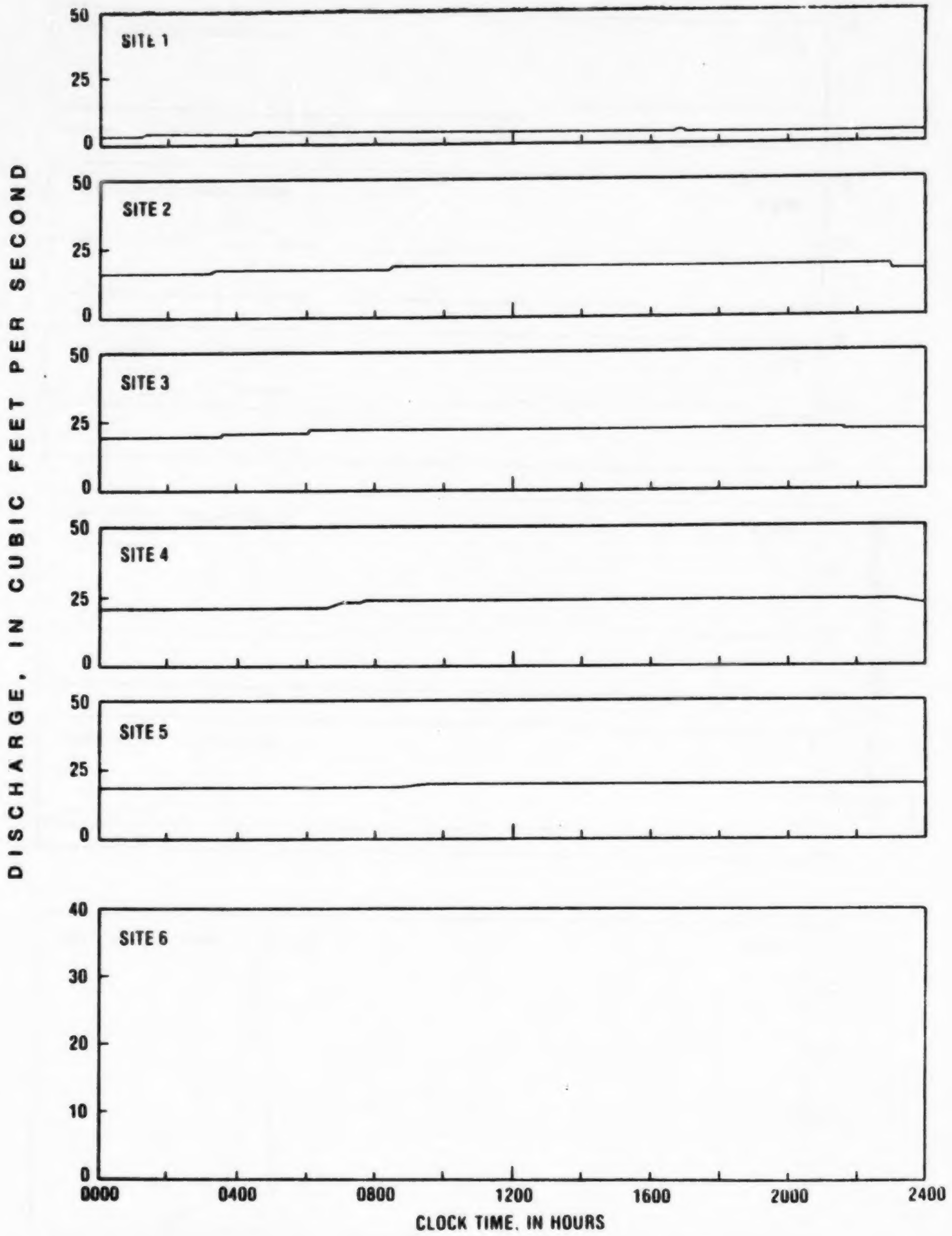

Figure 20.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 8, April 3, 1981.

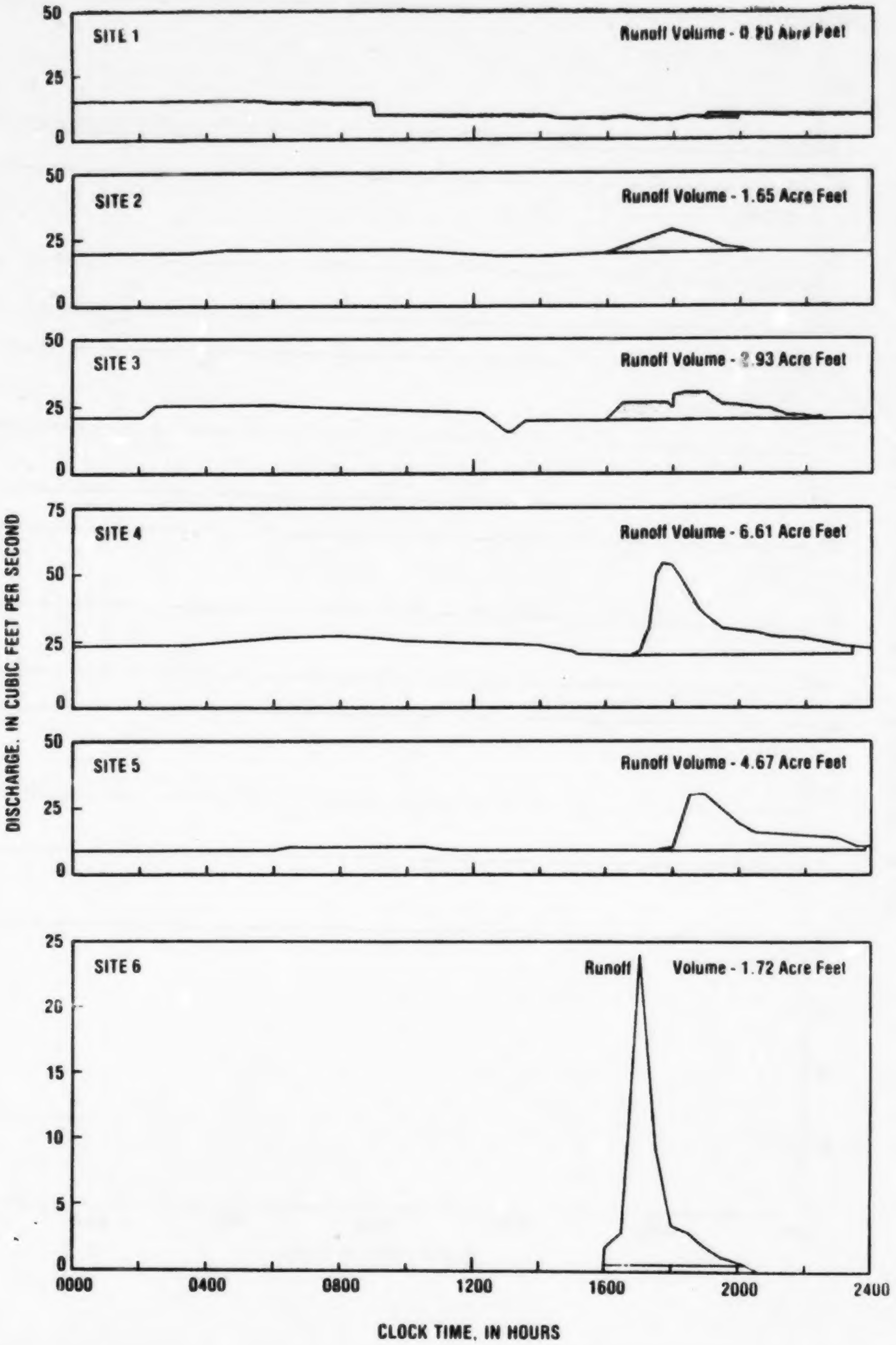

Figure 21.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 9, April 21, 1981.

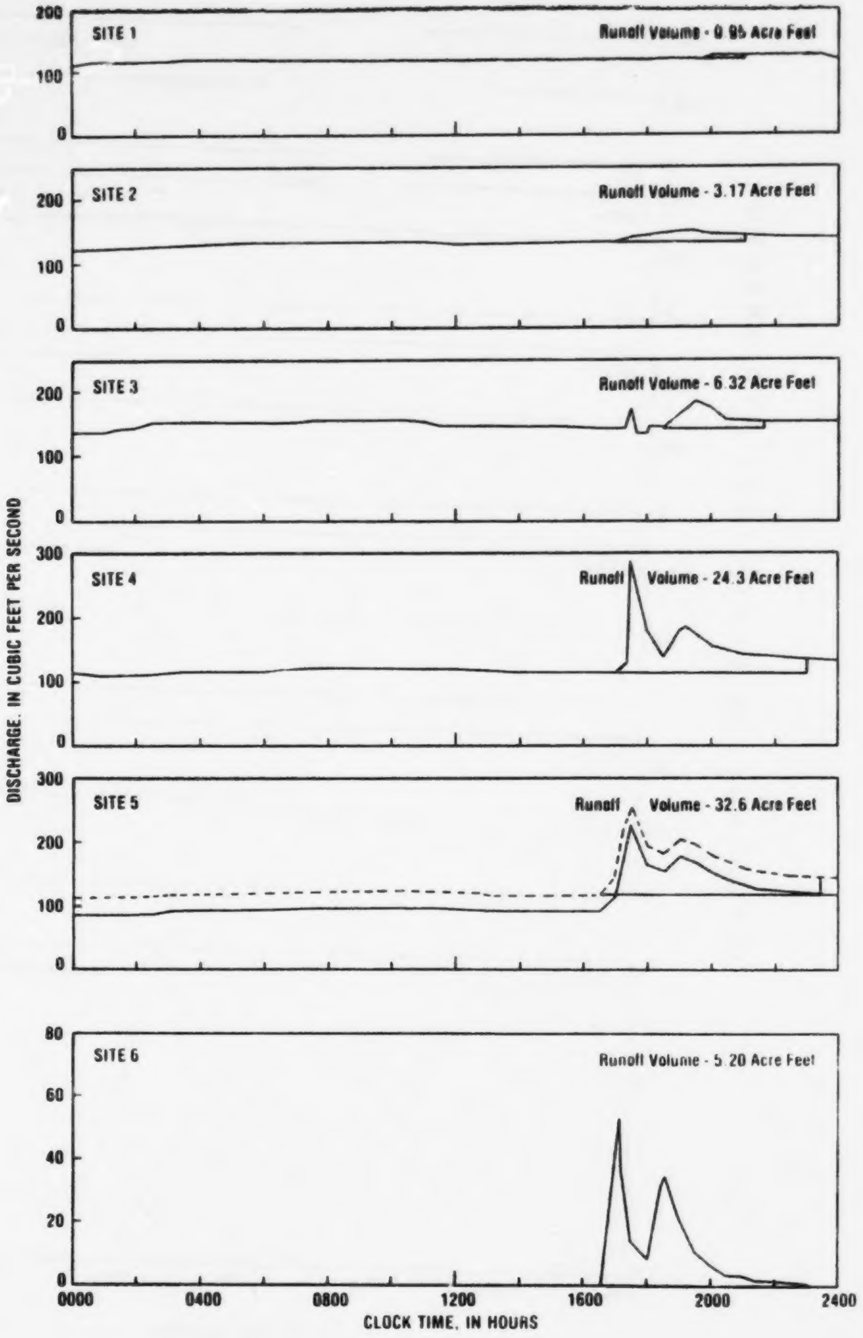

Figure 22.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 10, May 2, 1981.

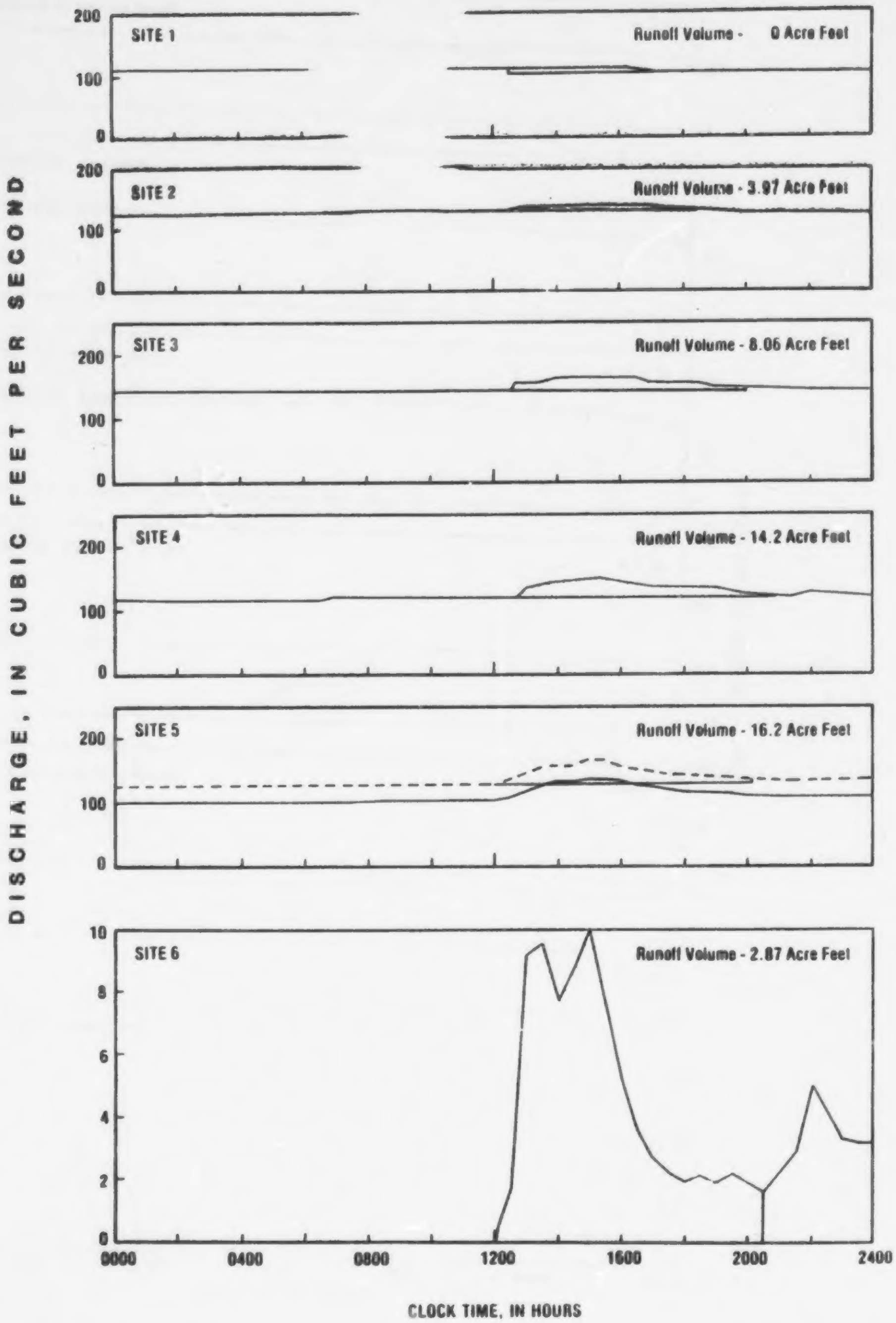

Figure 23.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 11, May 6, 1981.

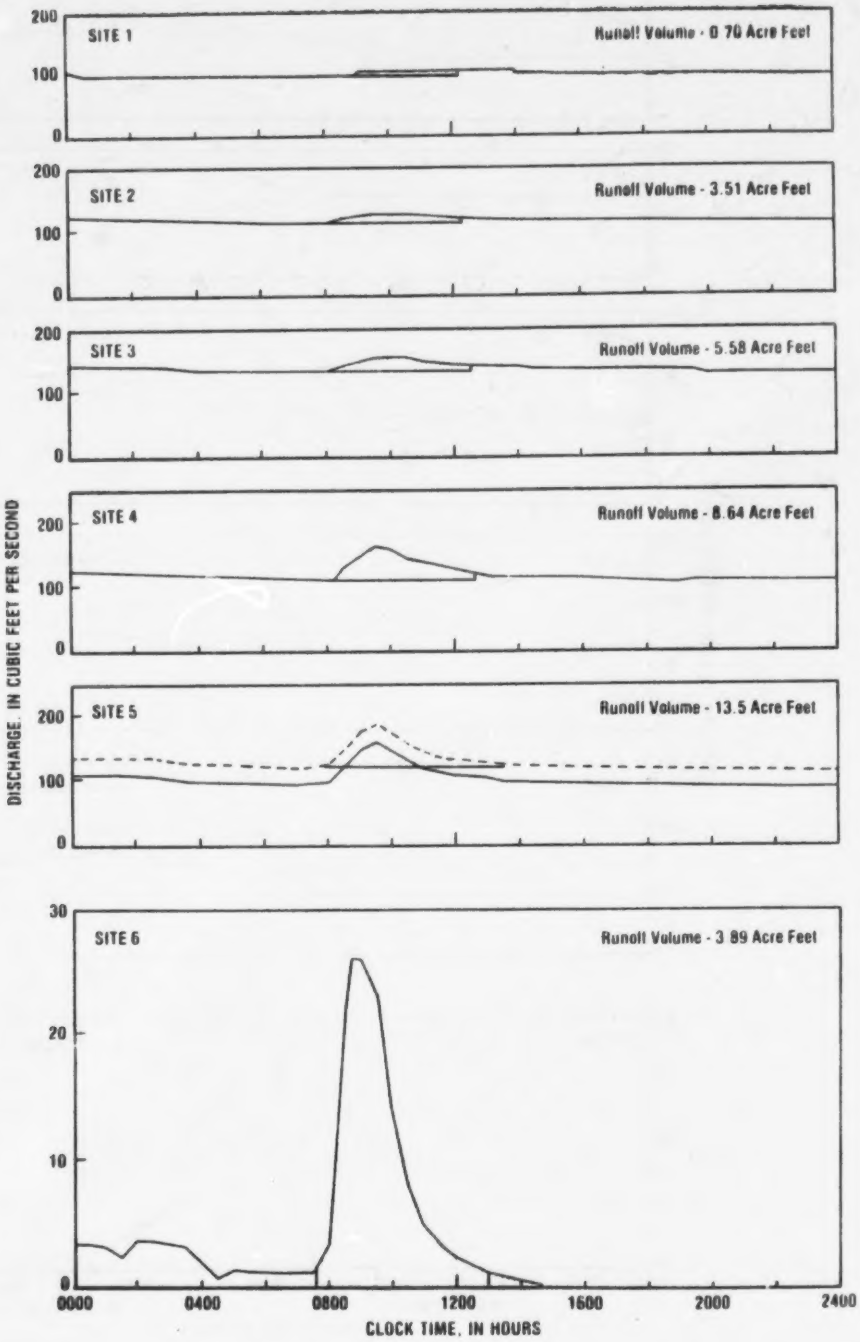

Figure 24. Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 12, May 7, 1981.

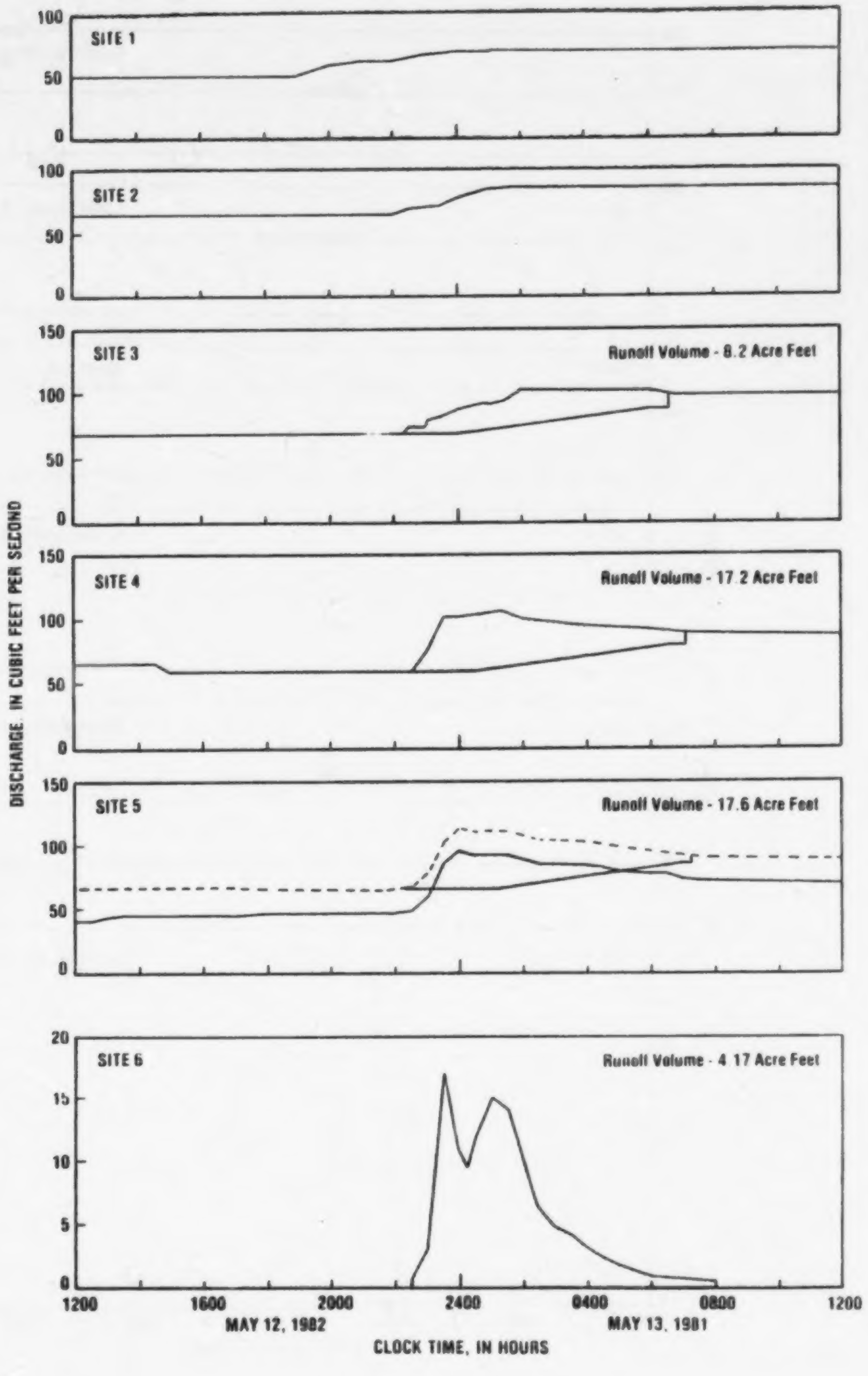

Figure 25.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 13, May 12-13, 1981.

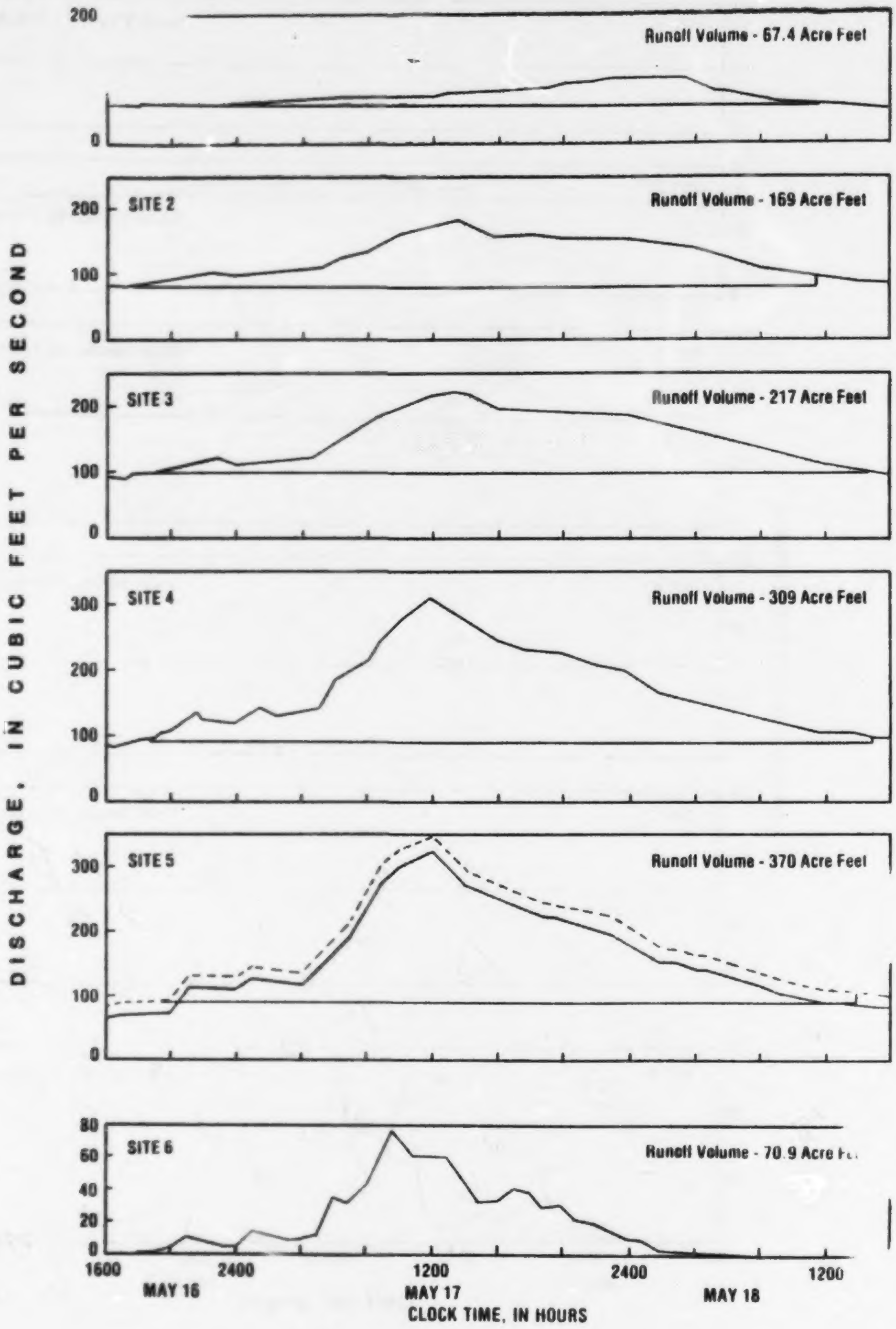

Figure 26.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 14, May 16-18, 1981.

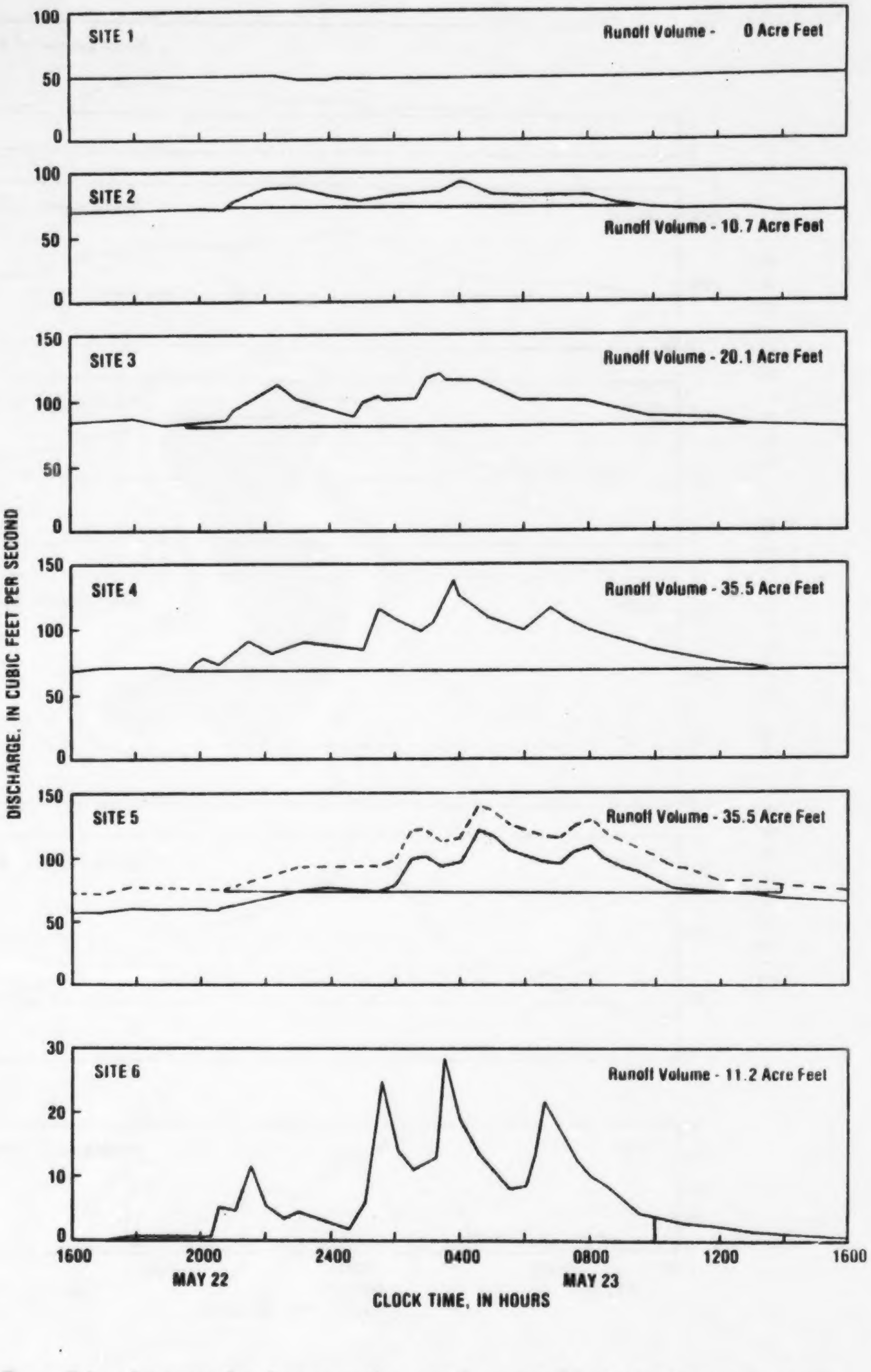

Figure 27.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 15, May 22-23, 1981.

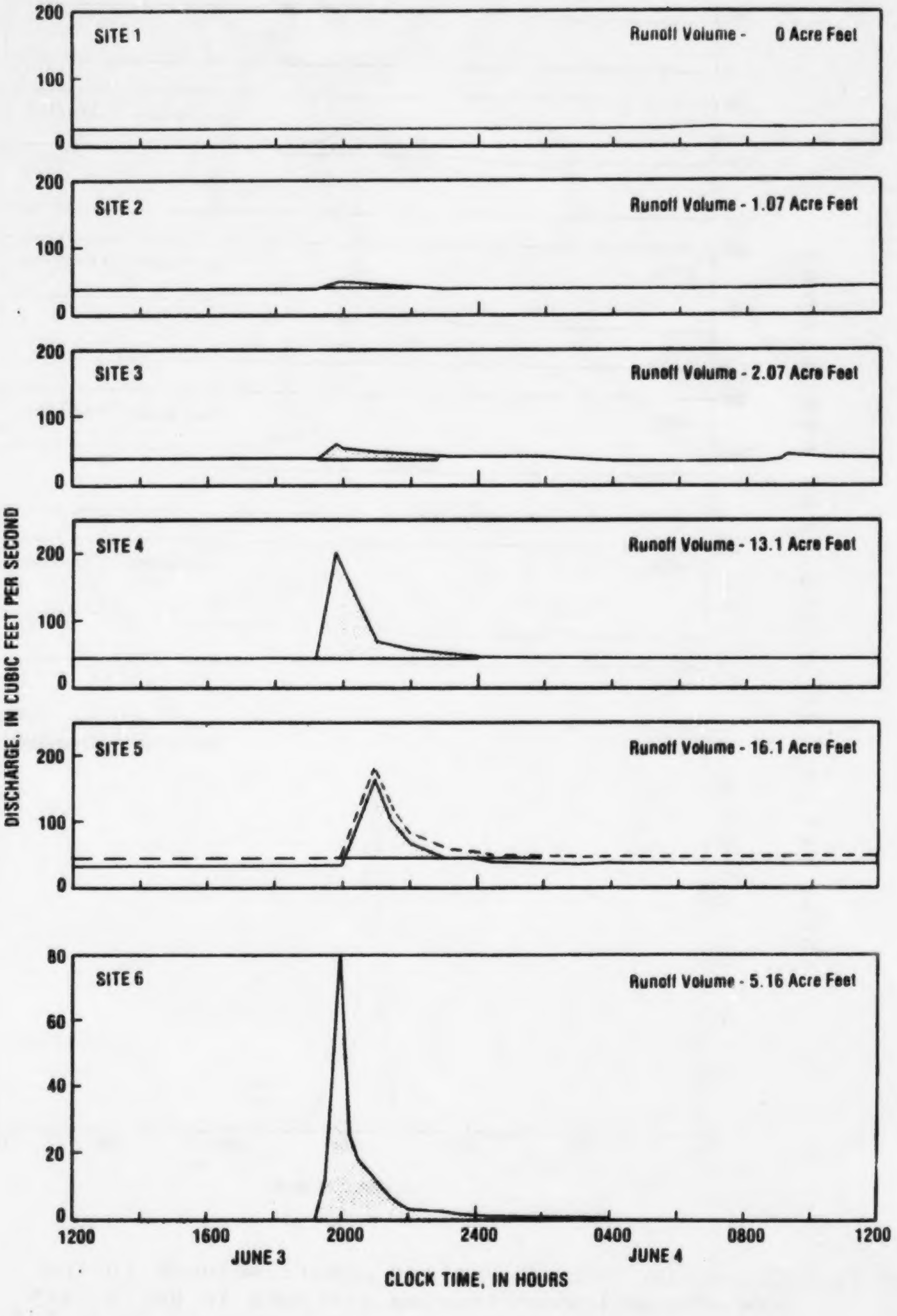

Figure 28.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 16, June 3-4, 1981.

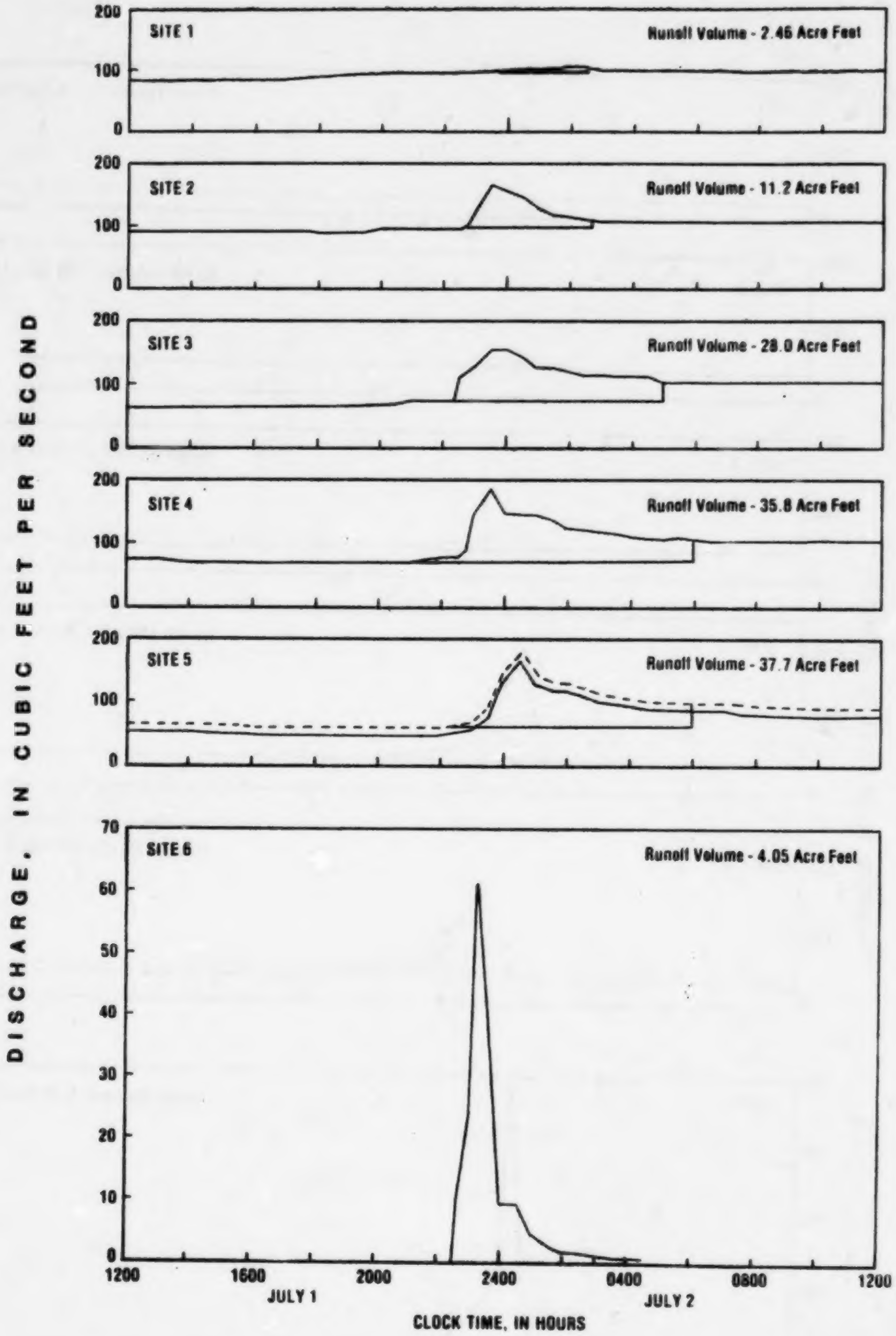

Figure 29.--Discharge hydrographs and runoff volumes in the six streamflow-monitoring stations in Rapid City for investigated runoff event number 17, July 1-2, 1981.

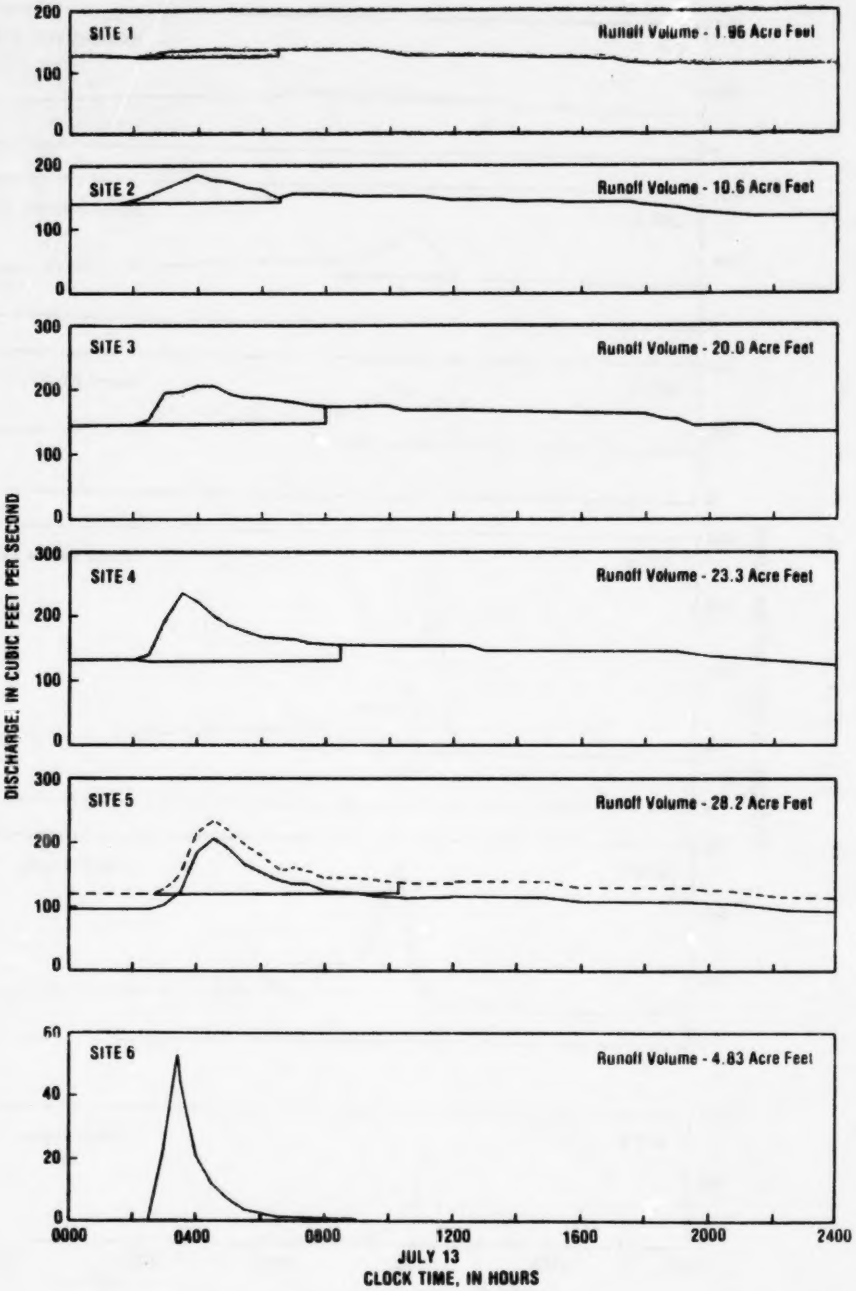

Figure 30.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 18, July 13, 1981.

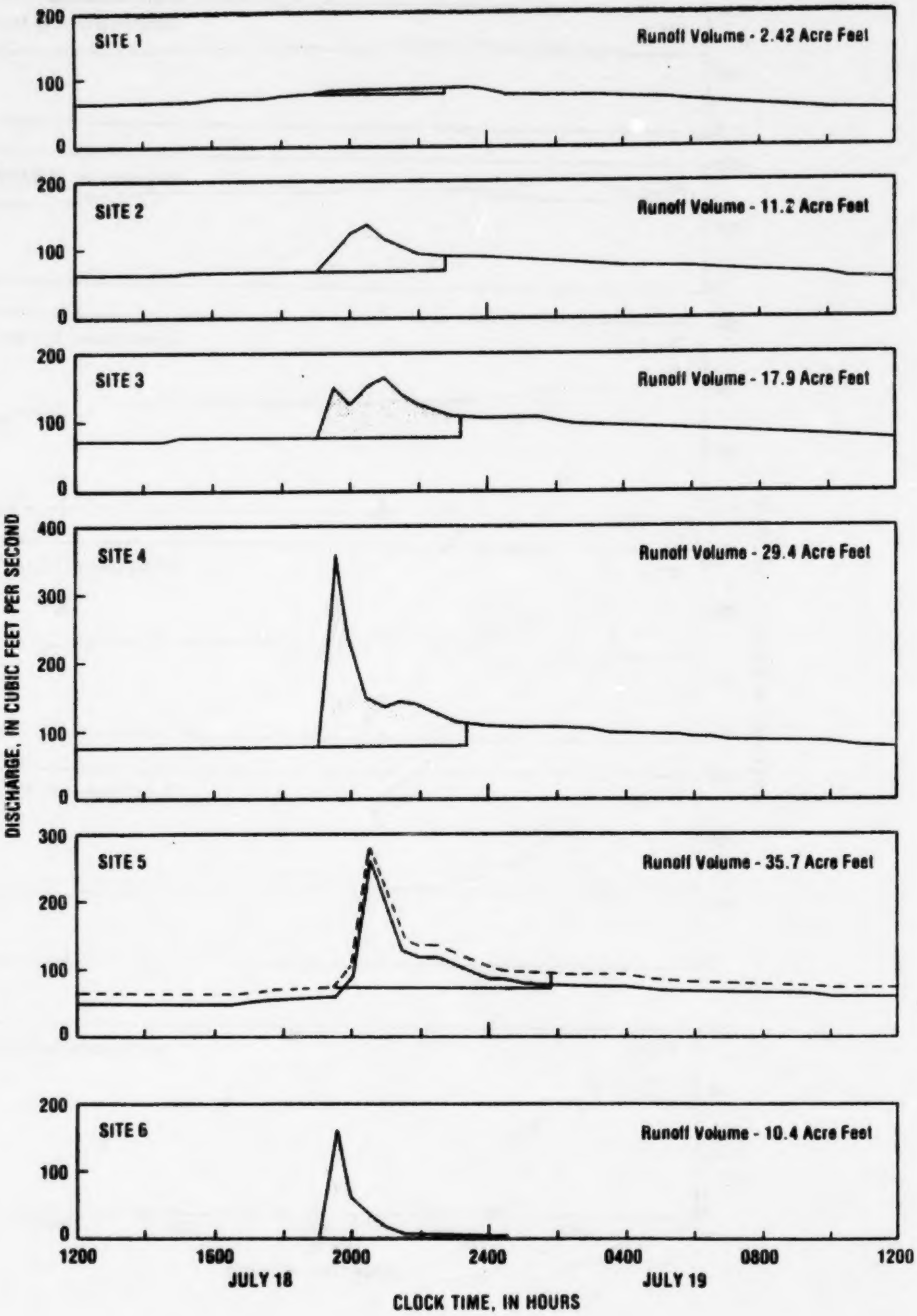

Figure 31.--Discharge hydrographs and runoff volumes in the six streamflow-monitoring stations in Rapid City for investigated runoff event number 19, July 18-19, 1981.

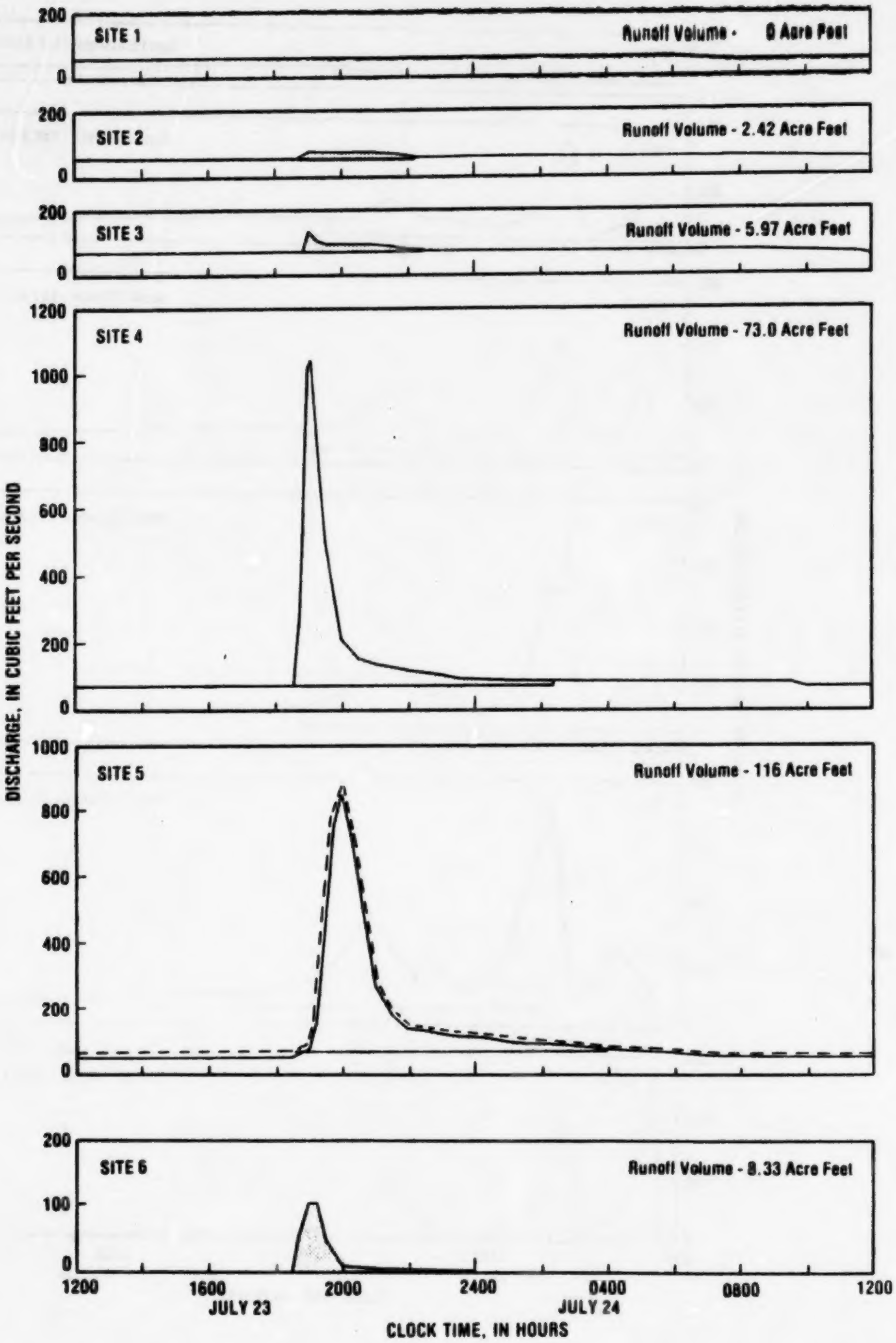

Figure 32.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 20, July 23-24, 1981.

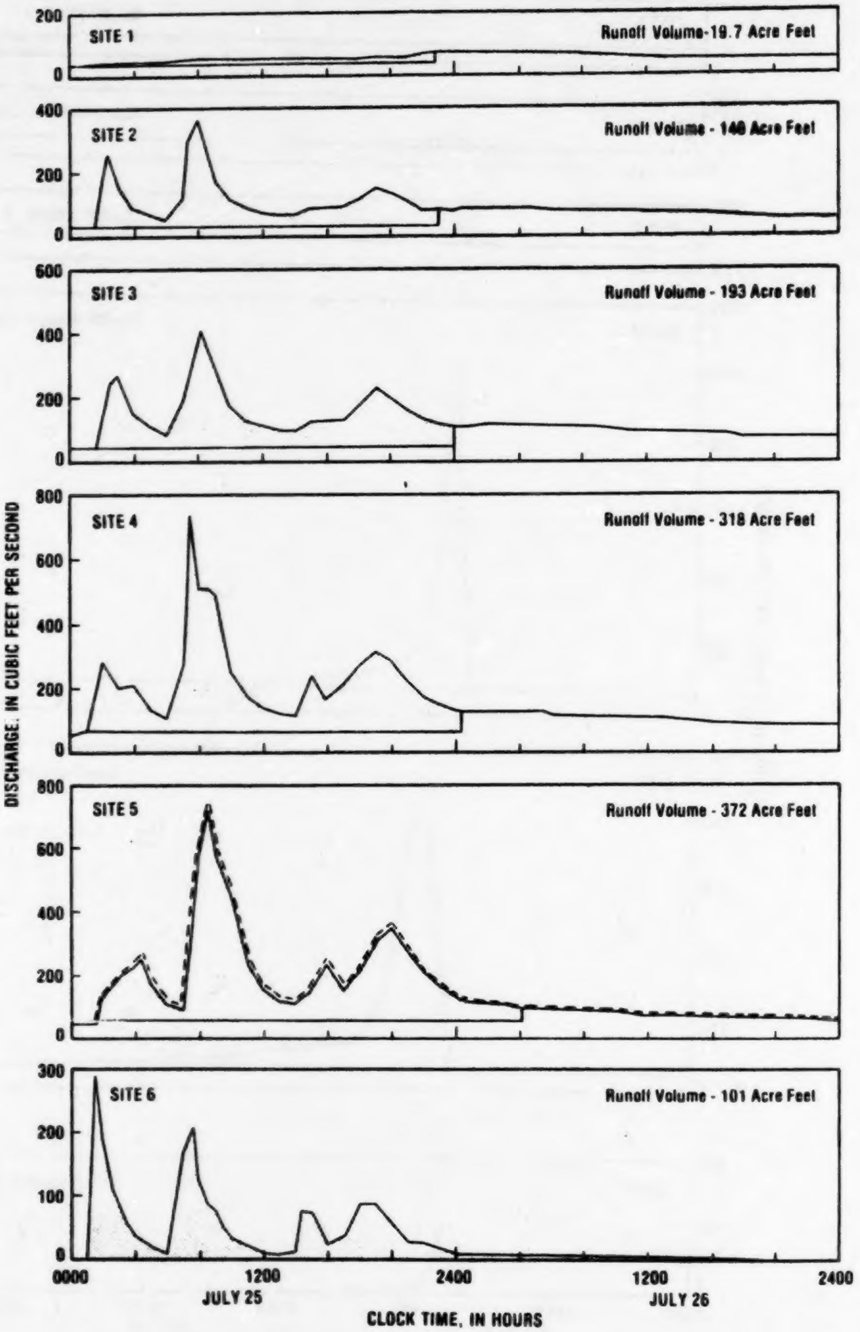

Figure 33.--Discharge hydrographs and runoff volumes in the six streamflow-monitoring stations in Rapid City for investigated runoff event number 21, July 25-26, 1981.

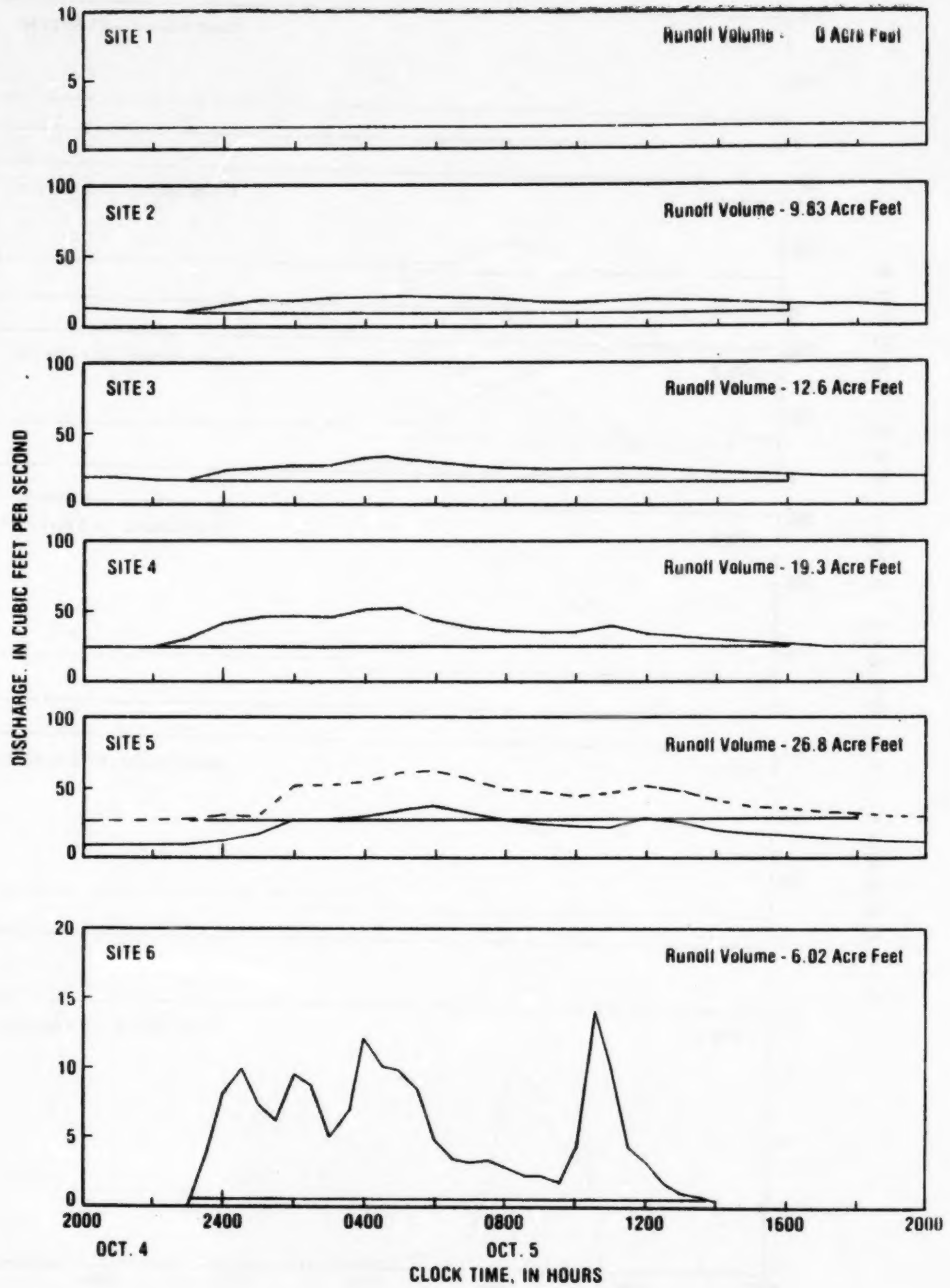

Figure 34.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 22, October 4-5, 1981.

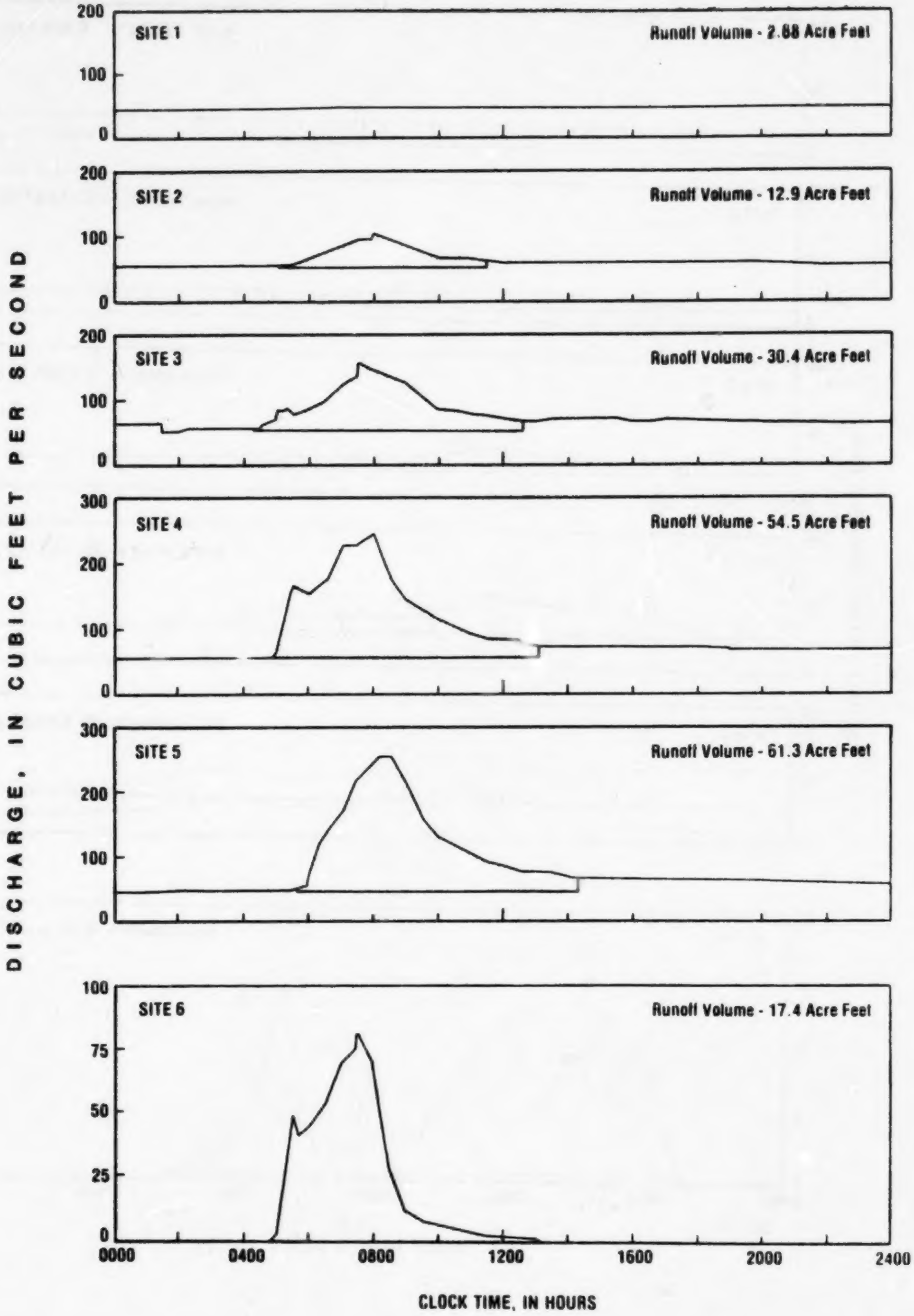

Figure 35.--Discharge hydrographs and runoff volumes in the six streamflow-monitoring stations in Rapid City for investigated runoff event number 26, May 10, 1982.

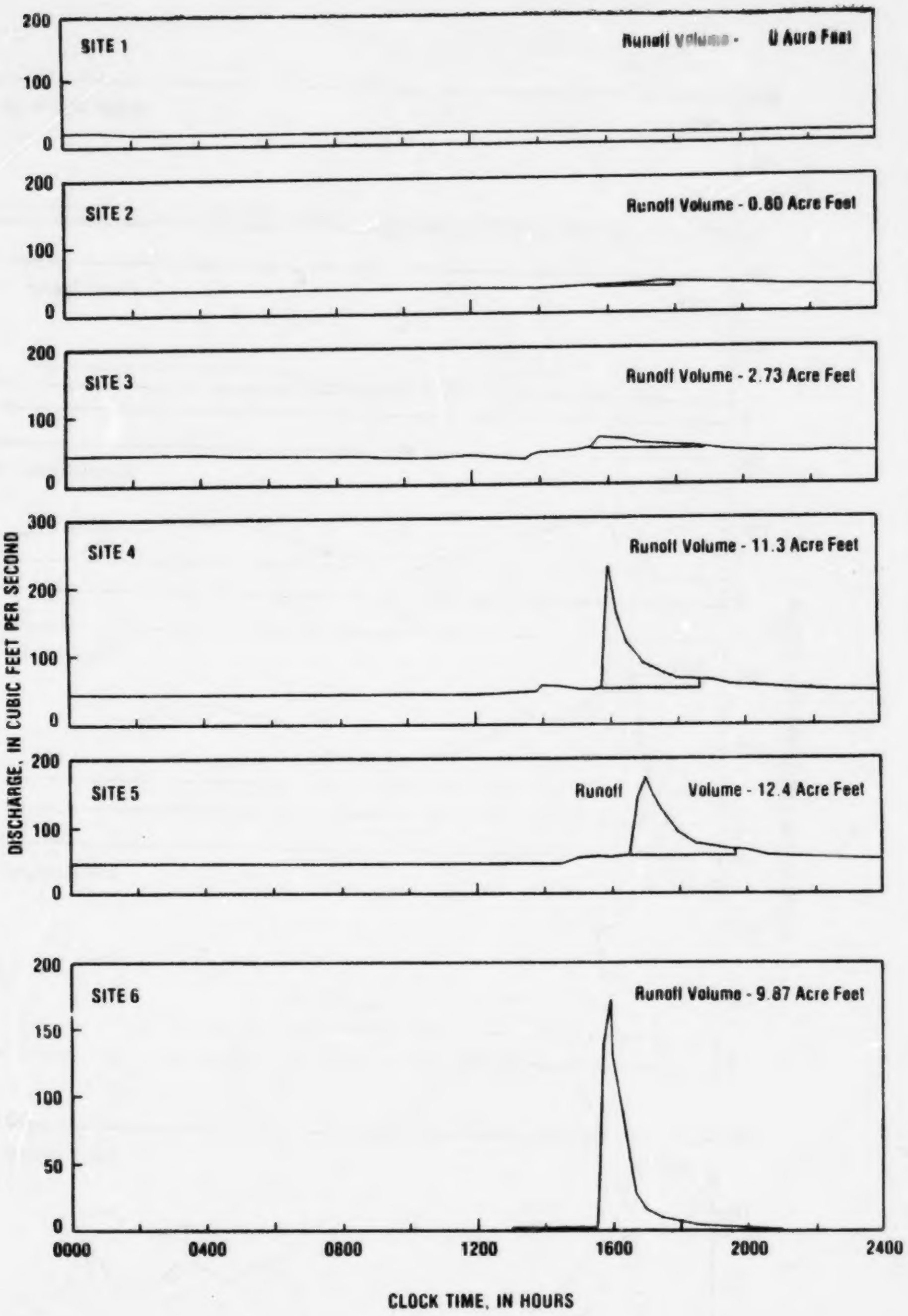

Figure 36.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 28, May 17, 1982.

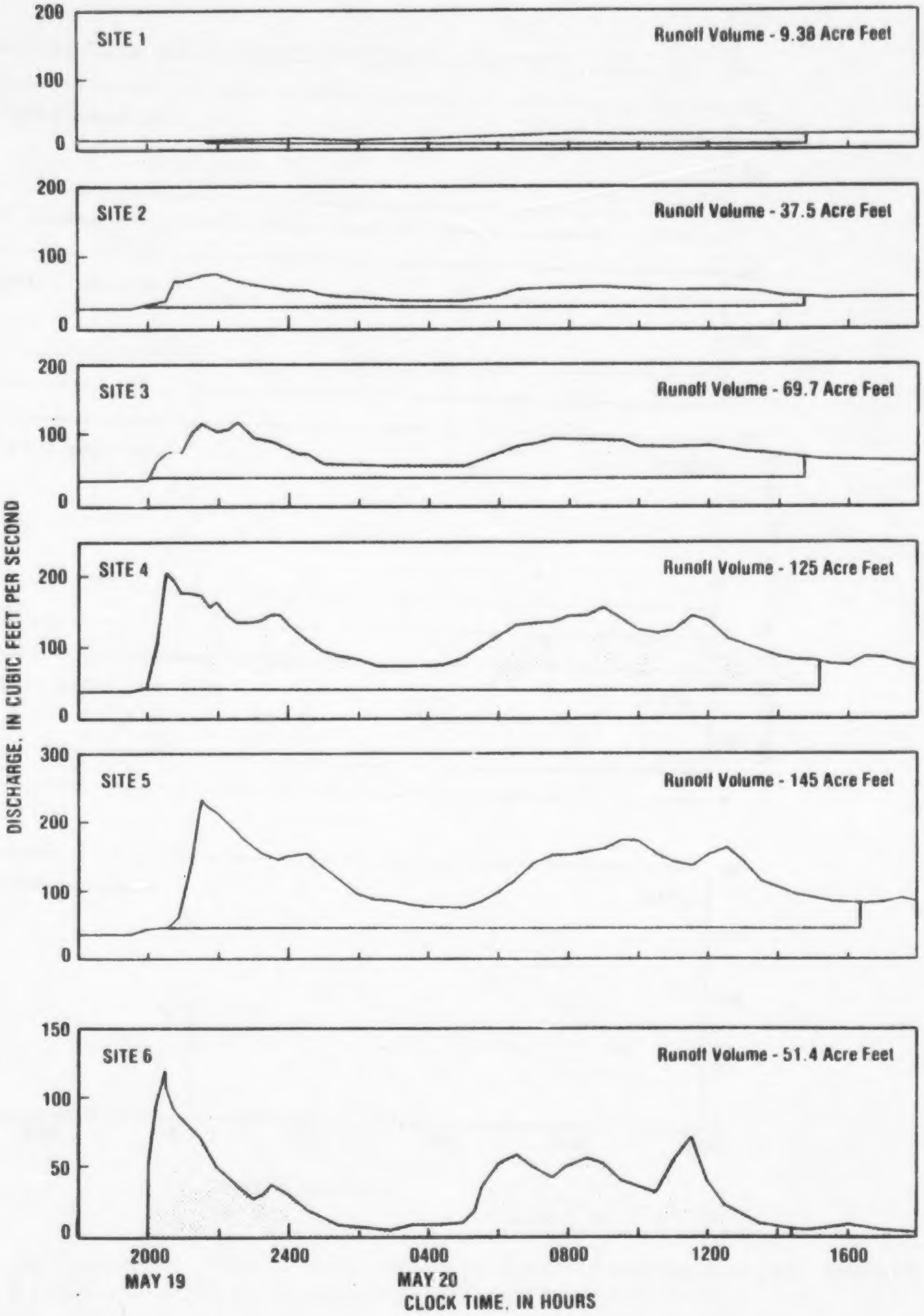

Figure 37.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 29, May 19-20, 1982.

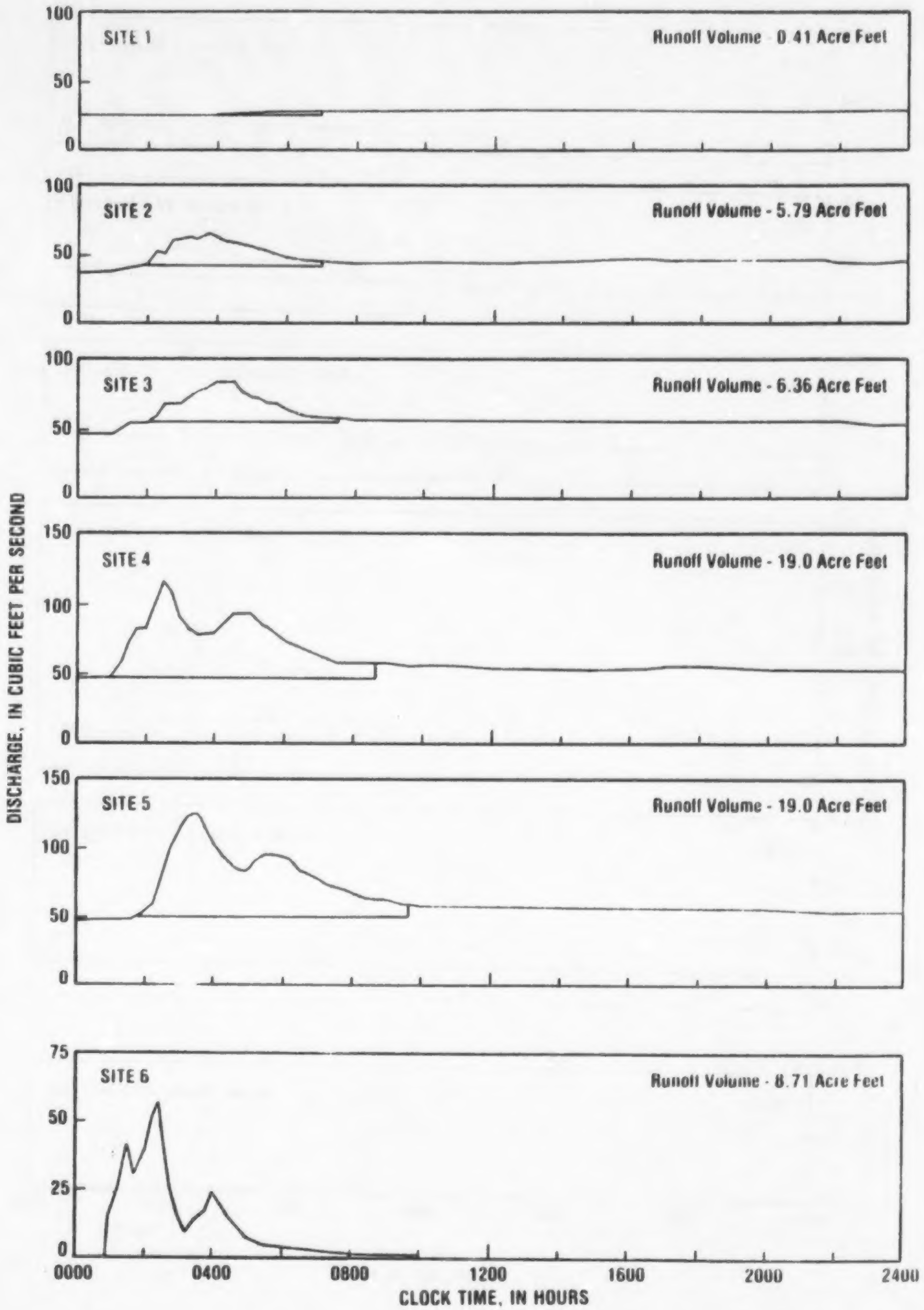

Figure 38.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 31, June 15, 1982.

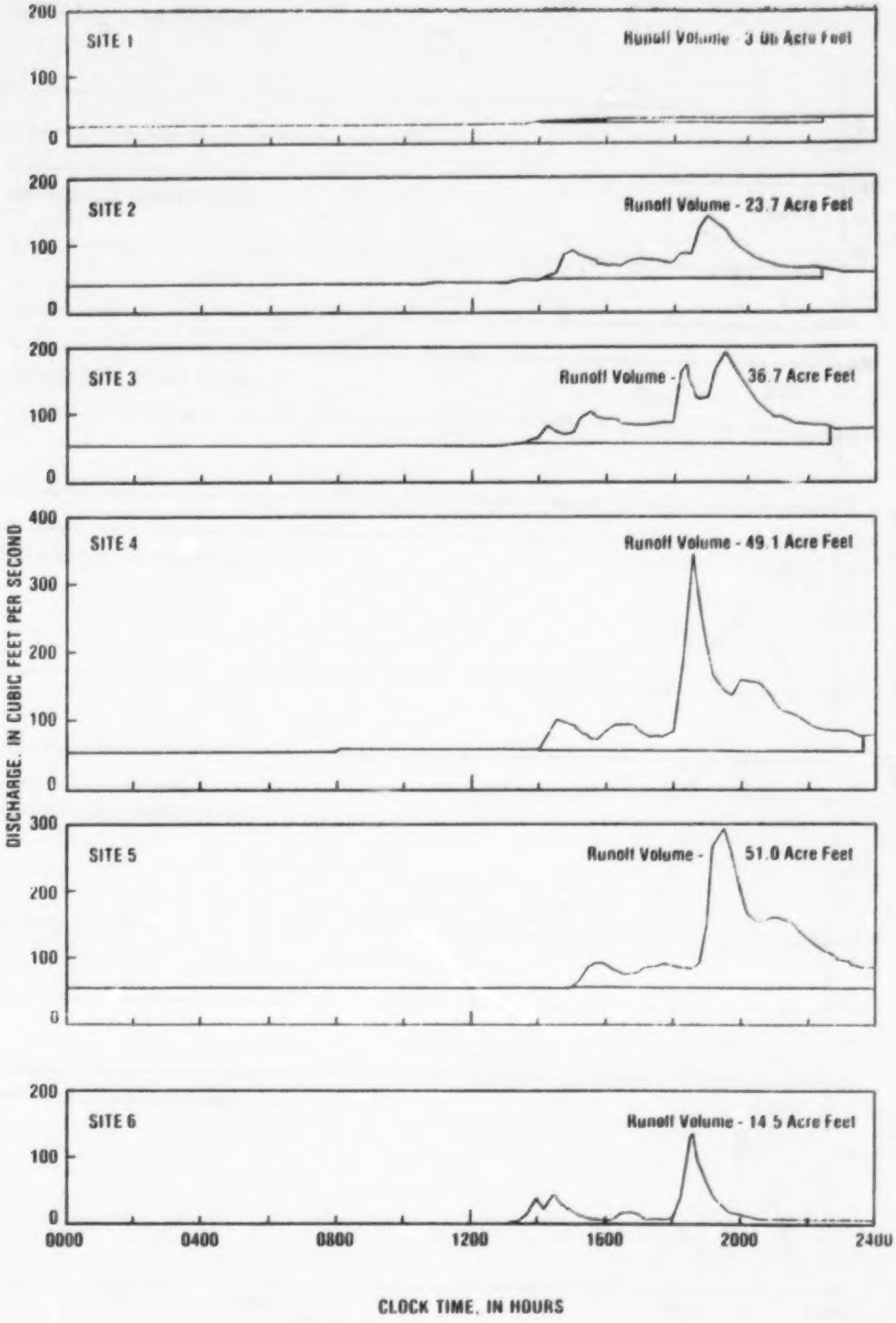

Figure 39.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 32, June 16-17, 1982.

95 22

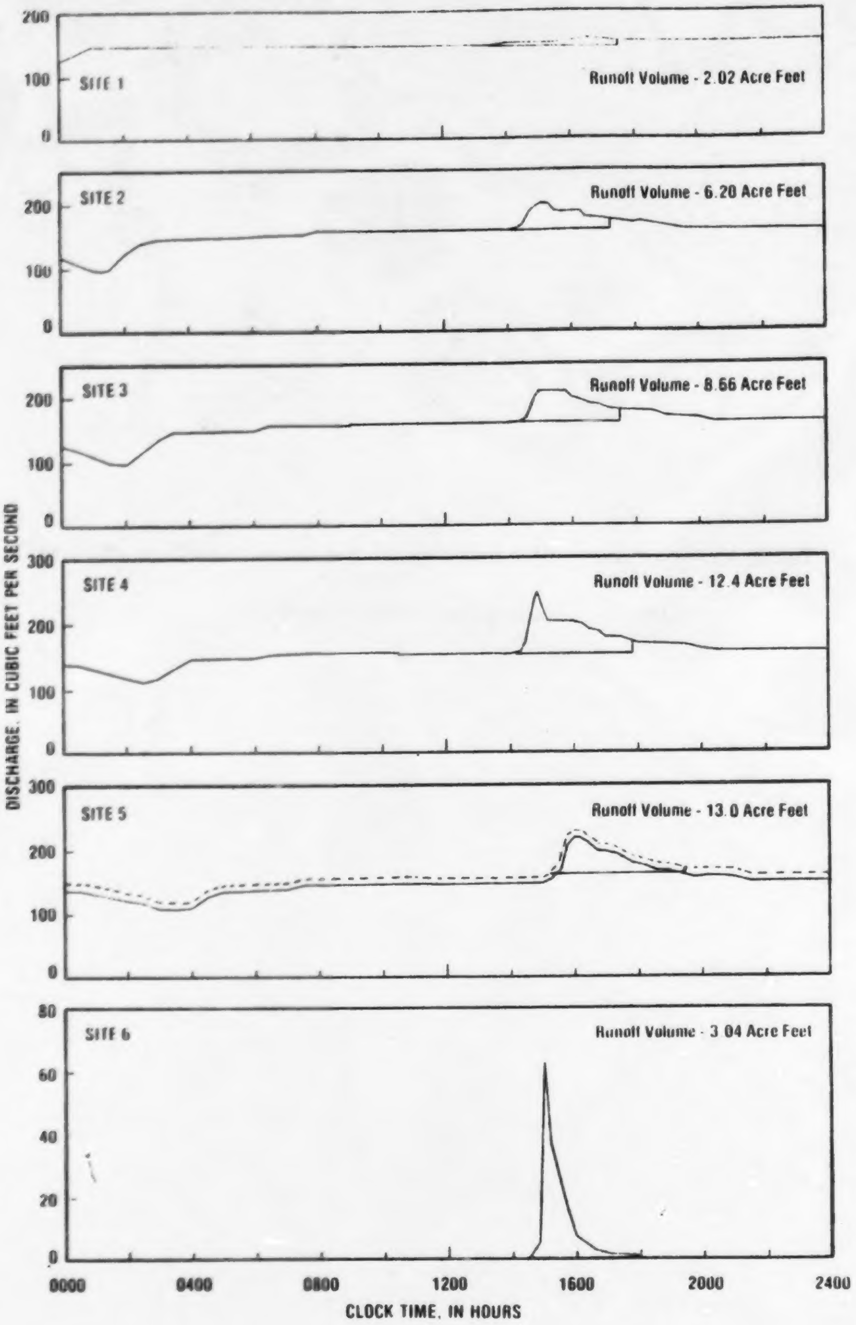

Figure 40.--Discharge hydrographs and runoff volumes at the six streamflow-monitoring stations in Rapid City for investigated runoff event number 33, July 8, 1982.

Table 15.—Summary of discharge at the six streamflow-monitoring stations in Rapid City for investigated runoff events.

Rapid Creek above Canyon Lake near Rapid City, SD (#1)

Runoff vent imber	Runoff event date	Base flow (ft³/s)	Peak flow (ft³/s)	Mean flow (ft³/s)	Runoff duration (min)	Runoff volume (acre-ft)
1	6/14/80	75	81	80	270	1.86
2	6/18/80	26	26	NA	NA	0
3	7/12/80	103	108	108	360	2.48
4	7/20/80	90	92	92	240	.66
5	7/25/80	82	86	86	450	2.48
6	8/20/80	32	35	35	180	.74
7	10/15/80	5.6	25	20	1,020	20.2
8	4/3/81	4.5	4.5	NA	NA	0
9	4/21/81	7.6	9.2	8.2	240	.20
10	5/2/81	116	123	119	230	.95
11	5/6/81	110	111	110	360	0
12	5/7/81	98	101	100	255	.70
13	5/12-13/81	50	68[1]	NA	NA	0 1
14	5/16/81	61	102	81	2,445	67.4
15	5/22-23/81	50	50	NA	NA	0
16	6/3/81	23	23	NA	NA	0
17	7/1-2/81	92	101	99	255	2.46
18	7/13/81	127	133	132	285	1.96
19	7/18/81	75	85	83	220	2.42
20	7/23/81	58	58	NA	NA	0
21	7/25/81	42	73	53	1,300	19.7
22	10/4-5/81	1.7	1.7	NA	NA	0
23	12/20/81	Snowmelt Event--accurate discharge data not available				
24	3/7/82	Snowmelt Event--accurate discharge data not available				
25	3/9/82	Snowmelt Event--accurate discharge data not available				
26	5/10/82	42	48	47	390	2.68
27	5/13-14/82	Sampler calibration-runoff data not necessary				
28	5/17/82	17	17	17	145	0
29	5/19-20/82	13	23	19	1,135	9.38
30	5/28/82	Sampler calibration-runoff data not necessary				
31	6/15/82	25	27	26	300	.41
32	6/16/82	29	36	33	555	3.06
33	7/8/82	143	155	150	210	2.02

Rapid Creek above Water Treatment Plant at Rapid City, SD (#2)

Runoff event number	Runoff event date	Base flow (ft ^{3}/s)	Peak flow (ft ^{3}/s)	Mean flow (ft ^{3}/s)	Runoff duration (min)	Runoff volume* (acre-ft)
1	6/14/80	82	153	110	270	10.4
2	6/18/80	38	47	44	240	1.86
3	7/12/80	116	255	158	390	22.6
4	7/20/80	95	124	110	420	8.68
5	7/25/80	98	133	114	405	8.93
6	8/20/80	40	52	49	210	2.60
7	10/15/80	20	127	72	1,065	76.3
8	4/3/81	18	18	NA	NA	0
9	4/21/81	19	28	24	240	1.65
10	5/2/81	134	149	144	230	3.17
11	5/6/81	127	137	135	360	3.97
12	5/7/81	114	128	124	255	3.51
13	5/12-13/81	64	85[1]	NA	NA	0 [1]
14	5/16/81	84	183	134	2450	169
15	5/22-23/81	72	92	82	780	10.7
16	6/3/81	39	47	44	155	1.07
17	7/1/81	97	166	129	255	11.2
18	7/13/81	140	183	167	285	10.6
19	7/18/81	68	134	105	220	11.2
20	7/23/81	56	70	64	220	2.42
21	7/25/81	38	366	116	1,300	140
22	10/4-5/81	11	21	18	1,020	9.83
23	12/20/81	Snowmelt Event--accurate discharge data not available				
24	3/7/82	Snowmelt Event--accurate discharge data not available				
25	3/9/82	Snowmelt Event--accurate discharge data not available				
26	5/10/82	53	101	77	390	12.9
27	5/13-14/82	Sampler calibration-runoff data not necessary				
28	5/17/82	38	44	42	145	.80
29	5/19-20/82	27	79	51	1,135	37.5
30	5/28/82	Sampler calibration-runoff data not necessary				
31	6/15/82	40	64	54	300	5.79
32	6/16/82	47	144	78	555	23.7
33	7/8/82	155	196	180	180	6.20

Rapid Creek at Rapid City, SD (#3)

Runoff event number	Runoff event date	Base flow (ft ^{3}/s)	Peak flow (ft ^{3}/s)	Mean flow (ft ^{3}/s)	Runoff duration (min)	Runoff volume (acre-ft)
1	6/14/80	83	144	117	270	12.6
2	6/18/80	36	49	43	240	2.31
3	7/12/80	78	214	142	390	34.4
4	7/20/80	73	115	99	390	14.0
5	7/25/80	86	125	110	375	12.4
6	8/20/80	50	68	60	315	4.34
7	10/15/80	19	172	88	1,200	114
8	4/3/81	23	23	23	NA	0
9	4/21/81	19	30	24	425	2.93
10	5/2/81	143	188	160	270	6.32
11	5/6/81	143	161	156	450	8.06
12	5/7/81	132	153	147	270	5.58
13	5/12-13/81	76	101	94	490	8.2 2
14	5/16-18/81	98	225	158	2,625	217
15	5/22-23/81	82	121	95	1,120	20.1
16	6/3/81	38	57	45	215	2.07
17	7/1-2/81	71	151	120	415	28.0
18	7/13/81	143	202	184	355	20.0
19	7/18/81	79	161	130	255	17.9
20	7/23/81	70	127	87	255	5.97
21	7/25/81	54	409	159	1,335	193
22	10/4-5/81	17	33	26	1,020	12.6
23	12/20/81	Snowmelt Event--accurate discharge data not available				
24	3/7/82	Snowmelt Event--accurate discharge data not available				
25	3/9/82	Snowmelt Event--accurate discharge data not available				
26	5/10/82	53	156	98	490	30.4
27	5/13-14/82	Sampler calibration-runoff data not necessary				
28	5/17/82	49	68	60	180	2.73
29	5/19-20/82	33	115	78	1,125	69.7
30	5/28/82	Sampler calibration-runoff data not necessary				
31	6/15/82	54	82	68	330	6.36
32	6/16/82	54	191	102	555	36.7
33	7/8/82	156	205	190	185	8.66

Rapid Creek at East Main Street at Rapid City, SD (#4)

Runoff event number	Runoff event date	Base flow (ft ^{3}/s)	Peak flow (ft ^{3}/s)	Mean flow (ft ^{3}/s)	Runoff duration (min)	Runoff volume (acre-ft)
1	6/14/80	69	381	146	300	31.8
2	6/18/80	34	59	47	330	5.91
3	7/12/80	84	309	169	450	52.7
4	7/20/80	75	162	116	405	22.9
5	7/25/80	75	157	116	405	22.9
6	8/20/80	51	103	65	450	8.68
7	10/15/80	16	266	120	1,170	168
8	4/3/81	Negligible rise, runoff volume not determined				
9	4/21/81	20	54	32	400	6.61
10	5/2/81	144	285	163	360	24.3
11	5/6/81	120	150	141	490	14.2
12	5/7/81	110	162	132	285	8.64
13	5/12-13/81	67	110	97	510	17.2 2
14	5/16-18/81	92	312	176	2,670	309
15	5/22-23/81	69	137	92	1,120	35.5
16	6/3-4/81	43	200	77	280	13.1
17	7/1-2/81	69	187	119	520	35.8
18	7/13/81	132	244	181	345	23.3
19	7/18/81	77	355	159	260	29.4
20	7/23-24/81	77	1040	191	465	73.0
21	7/25-26/81	59	730	222	1,415	318
22	10/4-5/81	24	51	37	1,080	19.3
23	12/20/81	Snowmelt Event--accurate discharge data not available				
24	3/7/82	Snowmelt Event--accurate discharge data not available				
25	3/9/82	Snowmelt Event--accurate discharge data not available				
26	5/10/82	58	241	138	495	54.5
27	5/13-14/82	Sampler calibration-runoff data not necessary				
28	5/17/82	50	226	97	175	11.3
29	5/19-20/82	39	220	117	1,160	125
30	5/28/82	Sampler calibration-runoff data not necessary				
31	6/15/82	46	116	76	460	19.0
32	6/16/82	55	347	117	575	49.1
33	7/8/82	150	244	191	220	12.4

Rapid Creek below Hawthorne Ditch (#5) Includes Hawthorne Ditch diversion data

Runoff event number	Runoff event date	Rapid Creek base flow (ft³/s)	Hawthorne[3/] Ditch base flow (ft³/s)	Total base flow (ft³/s)	Rapid Creek peak flow (ft³/s)	Rapid Creek mean flow (ft³/s)	Hawthorne[3/] Ditch mean flow (ft³/s)	Total mean flow (ft³/s)	Runoff duration (min)	Total runoff volume (acre-ft)
1	6/14/80	69	9.0	78	334	142	9.0	151	345	34.7
2	6/18/80	37	9.0	46	68	52	9.0	61	420	8.68
3	7/12/80	48	19	67	241	118	19	137	480	46.3
4	7/20/80	58	9.0	67	130	89	9.0	98	450	19.2
5	7/25/80	66	9.0	75	138	97	9.0	106	420	17.9
6	8/20/80	42	6.0	48	77	54	6.0	60	465	7.68
7	10/15/80	12	10	22	338	130	10	140	1170	190
8	4/3/81	18	0	18	Negligible rise, runoff volume not determined					NA
9	4/21/81	8.2	0	8.2	31	16.8	0	16.8	395	4.67
10	5/2/81	91	27	118	228	147	28	175	415	32.6
11	5/6/81	101	27	128	135	124	28	152	490	16.2
12	5/7/81	92	27	119	158	121	27	148	340	13.5
13	5/12-13/81	47	18	65	95	82	19	101	540	17.6
14	5/16-18/81	75	19	94	331	176	22	198	2585	370
15	5/22-23/81	58	17	75	124	86	14	100	1030	35.5
16	6/3-4/81	32	11	43	163	62	14	76	355	16.1
17	7/1-2/81	47	19	66	164	99	24	123	480	37.7
18	7/13/81	100	22	122	207	143	24	167	455	28.2
19	7/18-19/81	54	12	66	260	112	16	128	405	35.7
20	7/23-24/81	48	10	58	843	193	10	203	565	116
21	7/25-26/81	43	10	53	720	209	13	222	1600	372
22	10/4-5/81	9.7	17	27	36	23	22	45	1080	26.8
23	12/20/81		Snowmelt Event------accurate discharge data not available							
24	3/7/82		Snowmelt Event------accurate discharge data not available							
25	3/9/82		Snowmelt Event------accurate discharge data not available							
26	5/10/82	48	.53	49	253	132	1.2	133	530	61.3
27	5/13-14/82		Sampler calibration-----runoff data not necessary							
28	5/17/82	53	0	53	175	98	.31	98	200	12.4
29	5/19-20/82	41	0	41	232	128	.60	129	1200	145
30	5/28/82		Sampler calibration-----runoff data not necessary							
31	6/15/82	53	1.6	55	124	83	1.8	85	460	19.0
32	6/16/82	53	1.2	54	296	121	1.2	122	545	51.0
33	7/8/82	146	11	157	218	182	12	194	255	13.0

Meade Street Drain at Rapid City, SD (#6)

Runoff event umber	Runoff event date	Base flow (ft ^{3}/s)	Peak flow (ft ^{3}/s)	Mean flow (ft ^{3}/s)	Runoff duration (min)	Runoff volume (acre-ft)
1	6/14/80	1.9	190	25	390	12.4
2	6/18/80	.50	31	4.7	480	2.78
3	7/12/80	.50	84	20	300	8.06
4	7/20/80	.50	41	7.7	450	4.46
5	7/25/80	.50	33	7.4	350	3.33
6	8/20/80	.50	31	5.2	325	2.10
7	10/15/80	.50	100	31	1,160	48.7
8	4/3/81	Negligible rise		Runoff volume not determined		
9	4/21/81	.50	24	6.3	215	1.72
10	5/2/81	.50	53	12.3	320	5.20
11	5/6/81	.50	10	4.5	520	2.87
12	5/7/81	1.1	26	9.8	325	3.89
13	5/12-13/81	.50	17	7.3	445	4.17
14	5/16-18/81	.50	79	25.8	2,035	70.9
15	5/22-23/81	.68	29	10.4	840	11.2
16	6/3-4/81	.50	79	12.4	315	5.16
17	7/1-2/81	.50	62	11.6	265	4.05
18	7/13/81	.50	53	12.2	300	4.83
19	7/18/81	.50	160	26.0	295	10.4
20	7/23/81	.50	138	19.1	325	8.33
21	7/25/81	.50	287	53.3	1,385	101
22	10/4-5/81	.50	14	5.9	810	6.02
23	12/20/81	Snowmelt Event--accurate discharge data not available				
24	3/7/82	Snowmelt Event--accurate discharge data not available				
25	3/9/82	Snowmelt Event--accurate discharge data not available				
26	5/10/82	.50	81	26	495	17.4
27	5/13-14/82	Sampler calibration-runoff data not necessary				
28	5/17/82	.85	175	26	285	9.87
29	5/19-20/82	.50	119	34	1,115	51.4
30	5/28/82	Sampler calibration-runoff data not necessary				
31	6/15/82	.50	63	12	550	8.71
32	6/16/82	.50	138	19	570	14.5
33	7/8/82	.50	62	11	210	3.04

1 - Increase in discharge due to release from Pactola Reservoir, runoff volume assumed to the zero.

2 - Adjusted due to release from Pactola Reservoir.

3 - Hawthorn Ditch base and mean flow estimated based on information received from water master, investigated runoff events 1-9; base and mean flows determined from continuous discharge record, investigated runoff events 10-33.

Table 16. -- Physical, chemical, and sediment data for baseline, and investigated runoff events collected at the six streamflow-monitoring stations in Rapid City between May, 1980, and July, 1982.

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
MAY , 1980											
21...	--	1600	70	18.0	365	8.2	8.4	365	8.7	218	4
21...	--	1605	70	--	--	--	--	--	--	--	--
JUN											
03...	--	0840	66	10.5	338	8.1	9.3	--	7.6	233	6
03...	--	0845	66	--	--	--	--	--	--	--	--
14...	1.0	--	--	--	--	--	--	--	--	--	--
14...	--	1805	80	13.5	330	8.0	8.2	--	8.6	188	10
14...	--	1810	80	--	--	--	--	--	--	--	--
18...	2.0	--	--	--	--	--	--	--	--	--	--
18...	--	2010	26	18.0	335	7.9	6.5	--	8.6	230	6
18...	--	2015	26	--	--	--	--	--	--	--	--
JUL											
09...	--	1030	67	16.5	350	8.1	9.7	352	8.5	202	13
09...	--	1035	67	--	--	--	--	--	--	--	--
12...	--	1615	110	16.5	335	8.2	8.6	--	--	--	--
12-12	3.0	1815	--	--	--	--	--	291	8.6	219	25
12...	--	1915	114	16.0	335	8.1	8.5	--	--	--	--
20...	4.0	0905	92	14.0	335	7.9	8.3	342	8.3	223	15
20...	--	0908	92	--	--	--	--	--	--	--	--
25...	5.0	1920	88	13.0	329	7.8	8.5	361	8.5	223	7
25...	--	1930	88	--	--	--	--	--	--	--	--
AUG											
20...	6.0	0825	34	15.0	--	7.4	8.0	352	7.7	222	<4
20...	--	0830	34	--	--	--	--	--	--	--	--
SEP											
29...	--	0940	11	--	--	--	--	--	--	--	--
29...	--	0945	11	12.0	348	8.0	8.8	374	8.3	224	<4
OCT											
09...	--	0400	2.6	11.0	349	7.7	7.9	--	8.0	--	--
15-15	7.0	500	--	--	--	--	--	339	8.2	202	4
15...	--	0455	12	9.0	345	7.9	--	--	--	--	--
15...	--	0812	19	--	--	--	--	--	--	--	--
15...	--	0815	20	8.5	347	8.1	--	--	--	--	--
15...	--	1120	25	7.0	335	8.4	--	--	--	--	--
15...	--	1124	25	--	--	--	--	--	--	--	--
15...	--	1716	25	--	--	--	--	--	--	--	--
FEB , 1981											
18...	--	0945	10	.5	324	8.8	11.4	375	8.3	238	<4
APR											
29...	--	1400	20	14.5	347	8.3	9.3	371	8.6	246	<4

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, VOLA- TILE, SUS- PENDED (MG/L)	TUR- BID- ITY (NTU)	SEDI- MENT, SUS- PENDED (MG/L)	OXYGEN DEMAND, CHEM- ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
MAY , 1980											
21...	--	.45	--	<15	--	--	--	<.030	--	--	--
21...	--	--	26	--	--	--	--	--	--	--	--
JUN											
03...	<4	.60	--	--	--	--	--	--	--	--	.020
03...	--	--	28	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	<4	1.8	--	<15	--	--	--	.030	--	.090	.020
14...	--	--	23	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	<4	.75	--	--	<15	--	--	<.030	--	.060	<.010
18...	--	--	22	--	--	--	--	--	--	--	--
JUL											
09...	12	.50	--	<5	--	--	--	<.030	--	.050	<.010
09...	--	--	20	--	--	--	--	--	--	--	--
12...	--	--	53	--	--	--	--	--	--	--	--
12-12	<4	1.7	--	<5	--	.25	--	.190	--	.090	.010
12...	--	--	67	--	--	--	--	--	--	--	--
20...	12	.50	--	<5	--	.31	--	.040	--	.170	<.010
20...	--	--	85	--	--	--	--	--	--	--	--
25...	5	.80	--	<5	--	.06	--	.060	--	.100	<.010
25...	--	--	30	--	--	--	--	--	--	--	--
AUG											
20...	<4	.40	--	7	--	.36	--	<.030	--	.050	<.010
20...	--	--	174	--	--	--	--	--	--	--	--
SEP											
29...	--	--	72	--	--	--	--	--	--	--	--
29...	<4	.45	--	<5	--	.10	--	<.030	--	.020	<.010
OCT											
09...	--	--	--	--	--	.60	.030	--	.000	.000	.040
15-15	4	2.6	--	9	--	.32	--	.070	--	.190	<.010
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	21	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	25	--	--	--	--	--	--	--	--
15...	--	--	26	--	--	--	--	--	--	--	--
FEB , 1981											
18...	<4	.25	6	<5	--	.08	--	<.030	--	.100	<.010
APR											
29...	<4	4.3	9	<5	--	.15	--	<.030	--	.030	<.010

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)
MAY , 1980											
21...	--	--	--	--	--	--	--	--	2.0	--	K8
21...	--	--	--	--	--	--	--	--	--	--	--
JUN											
03...	--	--	--	3.2	--	--	--	--	3.0	--	K15
03...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	3.6	--	--	--	--	1.0	--	K260
14...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	<.010	--	--	3.6	--	--	--	--	3.0	--	K170
18...	--	--	--	--	--	--	--	--	--	--	--
JUL											
09...	<.010	--	--	3.2	--	--	--	--	1.3	--	K65
09...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12-12	.010	--	--	3.0	--	--	--	--	2.7	--	K700
12...	--	--	--	--	--	--	--	--	--	--	--
20...	<.010	--	--	3.2	--	--	--	--	1.2	--	K100
20...	--	--	--	--	--	--	--	--	--	--	--
25...	<.010	--	--	3.2	--	--	--	--	2.0	--	K160
25...	--	--	--	--	--	--	--	--	--	--	--
AUG											
20...	<.010	--	--	3.4	--	--	--	--	2.5	--	K200
20...	--	--	--	--	--	--	--	--	--	--	--
SEP											
29...	--	--	--	--	--	--	--	--	--	--	--
29...	<.010	--	--	3.8	--	--	--	--	3.8	--	--
OCT											
09...	--	42	21	--	3.8	2.8	160	41	2.8	1	--
15-15	<.010	--	--	3.6	--	--	--	--	2.1	--	320
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
FEB , 1981											
18...	<.010	--	--	4.2	--	--	--	--	2.6	<10	K190
APR											
29...	<.010	--	--	4.3	--	--	--	--	2.1	<10	K20

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)
MAY , 1981								
06-07	11.0	830	--	--	--	--	--	362
06...	--	1540	111	8.5	342	8.3	10.3	--
06...	--	2225	105	7.5	345	8.2	10.9	--
17-18	14.0	435	--	--	--	--	--	340
17...	--	0941	78	--	--	--	--	--
17...	--	0943	78	8.5	321	8.1	9.8	--
17...	--	1404	82	--	--	--	--	--
17...	--	1409	82	8.5	307	8.3	9.6	--
17...	--	2106	99	8.0	311	8.2	10.0	--
17...	--	2113	99	--	--	--	--	--
18...	--	0949	66	8.0	307	8.2	10.1	--
18...	--	0950	66	--	--	--	--	--
23...	15.0	0926	46	10.5	385	8.1	--	--
JUN								
24...	--	0935	47	--	--	--	--	361
24...	--	0948	47	17.5	340	8.1	7.8	--
JUL								
01-02	--	2245	--	--	--	--	--	407
01...	--	2246	98	--	--	--	--	--
13-13	18.0	305	--	--	--	--	--	369
13...	--	0440	133	11.0	346	8.0	8.1	--
13...	--	0445	133	--	--	--	--	--
17-18	19.0	--	--	--	--	--	--	--
23-23	20.0	--	--	--	--	--	--	--
23...	--	1915	--	--	--	--	--	366
25-25	21.0	720	--	--	--	--	--	347
25...	--	0740	50	--	--	--	--	--
25...	--	0955	56	15.5	322	7.9	7.1	--
25...	--	1124	52	--	--	--	--	--
25...	--	1130	52	15.5	328	8.0	7.5	--
OCT								
01...	--	0855	30	8.5	337	--	--	--
05-05	22.0	--	--	--	--	--	--	--
05...	--	405	--	--	--	--	--	--
05...	--	0405	3.0	--	--	--	--	--
05...	--	0415	--	11.0	--	--	--	--
05...	--	0550	3.0	--	--	--	--	--
05...	--	0555	3.0	11.0	--	--	--	--
05...	--	0735	3.0	--	--	--	--	--
26...	--	1050	2.2	7.0	350	--	--	--

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
MAY , 1981									
06-07	8.3	230	4	<4	1.6	--	9	.17	.200
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
17-18	8.2	220	9	<4	2.5	--	16	.18	<.030
17...	--	--	--	--	--	20	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	8	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	17	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	15	--	--	--
23...	--	--	--	--	--	--	--	--	--
JUN									
24...	8.0	234	<4	<4	1.8	5	<5	.05	<.030
24...	--	--	--	--	--	--	--	--	--
JUL									
01-02	7.8	236	5	<4	1.5	--	14	.43	.040
01...	--	--	--	--	--	11	--	--	--
13-13	8.0	234	5	<4	1.5	--	16	.06	.060
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	22	--	--	--
17-18	--	--	--	--	--	--	--	--	--
23-23	--	--	--	--	--	--	--	--	--
23...	8.7	264	<4	<4	.70	--	<5	<.05	<.030
25-25	8.2	208	6	<4	4.7	--	12	.08	.070
25...	--	--	--	--	--	9	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	7	--	--	--
25...	--	--	--	--	--	--	--	--	--
OCT									
01...	--	--	--	--	--	--	--	--	--
05-05	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
MAY , 1981								
06-07	.050	.020	.010	3.1	3.0	<10	<10	K35
06...	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--
17-18	.120	.040	.010	3.6	3.9	<10	<10	K200
17...	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--
JUN								
24...	.080	<.010	<.010	3.5	2.5	<10	--	K50
24...	--	--	--	--	--	--	--	--
JUL								
01-02	<.010	.010	<.010	3.0	2.3	<10	<10	440
01...	--	--	--	--	--	--	--	--
13-13	.010	.030	.010	3.3	1.2	<10	<10	K240
13...	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--
17-18	--	--	--	--	--	--	<0	--
23-23	--	--	--	--	--	--	--	--
23...	.010	<.010	<.010	3.5	1.4	<10	--	K60
25-25	.060	.020	<.010	3.1	1.4	<10	<10	350
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
OCT								
01...	--	--	--	--	--	--	--	--
05-05	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	2	--	--
05...	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
DEC , 1981											
10...	--	0850	8.4	2.0	--	--	--	381	8.4	--	--
10...	--	0900	9.2	2.0	344	8.2	9.1	--	--	--	--
20...	--	--	--	--	--	--	--	403	8.2	--	--
20...	--	1540	12	--	--	--	--	--	--	--	--
20-20	23.0	1540	--	--	--	--	--	417	8.2	--	254
20...	--	1905	16	--	--	--	--	--	--	--	--
MAR , 1982											
07-07	24.0	--	--	--	--	--	--	--	--	--	--
07...	--	1300	E6.0	.5	386	7.9	--	--	--	--	--
07...	--	1530	E6.0	.5	382	7.9	--	--	--	--	236
07...	--	1800	E6.0	.5	369	7.9	--	--	--	--	238
07...	--	2115	E6.0	.5	369	8.0	--	--	--	--	--
09-10	25.0	--	--	--	--	--	--	--	--	--	--
09...	--	1110	E7.0	.5	361	8.0	13.3	--	--	--	226
09...	--	1435	11	1.5	348	8.0	13.1	--	--	--	--
09...	--	1740	12	1.5	347	8.0	13.6	--	--	--	222
09...	--	2050	9.2	.5	356	7.8	13.0	--	--	--	--
APR											
28...	--	0800	4.0	--	--	--	--	--	--	--	--
28...	--	0805	4.0	7.0	370	7.9	11.4	388	8.3	--	230
MAY											
10-10	26.0	525	--	--	--	--	--	386	7.9	--	--
10...	--	0525	43	--	--	--	--	386	8.4	217	223
10...	--	0835	48	--	--	--	--	383	8.3	212	221
10...	--	0840	48	--	--	--	--	--	--	--	--
10...	--	0845	48	10.5	354	8.1	8.7	--	--	--	--
10...	--	1045	48	--	--	--	--	385	8.4	213	221
10...	--	1050	48	--	--	--	--	--	--	--	--
10...	--	1100	48	11.5	352	8.2	8.8	--	--	--	--
13-14	27.0	--	--	--	--	--	--	--	--	--	--
17-17	28.0	1610	--	--	--	--	--	--	--	--	--
19...	--	0035	16	12.0	354	7.5	8.4	--	--	--	--
19...	--	2020	13	--	--	--	--	--	--	--	--
19-20	29.0	2020	--	--	--	--	--	377	8.1	--	226
19...	--	2245	15	--	--	--	--	--	--	--	--
20...	--	0025	16	--	--	--	--	--	--	--	--
20...	--	0615	20	--	--	--	--	--	--	--	--
20...	--	0620	20	11.5	351	7.6	8.4	--	--	--	--
20...	--	1305	23	--	--	--	--	--	--	--	--
20...	--	1310	23	11.5	353	8.0	10.7	--	--	--	--

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
DEC , 1981											
10...	--	--	--	--	--	.22	<.20	.090	.080	<.100	<.100
10...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	4	--	--	--	--	--	--	--
20-20	<4	<4	.50	--	<5	<.05	--	--	<.030	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
MAR , 1982											
07-07	--	--	--	--	--	--	--	--	--	--	--
07...	<4	<4	--	--	--	--	--	--	--	--	--
07...	<4	<4	--	--	--	--	--	--	--	--	--
07...	<4	<4	--	--	--	--	--	--	--	--	--
07...	<4	<4	--	--	--	--	--	--	--	--	--
09-10	--	--	--	--	--	--	--	--	--	--	--
09...	<4	<4	--	--	--	--	--	--	--	--	--
09...	<4	<4	--	--	--	--	--	--	--	--	--
09...	<4	<4	--	--	--	--	--	--	--	--	--
09...	<4	<4	1.8	--	--	--	--	--	--	--	--
APR											
26...	--	--	--	1	--	--	--	--	--	--	--
28...	<4	<4	--	--	<5	<.05	--	--	.030	--	.050
MAY											
10-10	4	<4	1.3	--	<5	--	--	--	--	--	--
10...	12	--	--	3	--	.45	.46	<.060	.100	<.100	<.100
10...	5	--	--	--	--	.50	.70	<.060	.080	<.100	<.100
10...	--	--	--	4	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	<2	--	--	--	--	.48	.43	<.060	.090	<.100	<.100
10...	--	--	--	4	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
13-14	--	--	--	--	--	--	--	--	--	--	--
17-17	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	6	--	--	--	--	--	--	--
19-20	<4	<4	.85	--	<5	<.05	--	--	.040	--	.020
19...	--	--	--	1	--	--	--	--	--	--	--
20...	--	--	--	1	--	--	--	--	--	--	--
20...	--	--	--	1	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	1	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)
DEC , 1961											
10...	.040	--	43	22	--	4.1	2.4	43	3.1	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	42	22	--	4.3	2.2	44	3.7	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20-20	<.010	<.010	--	--	4.5	--	--	--	3.7	<10	<3
20...	--	--	--	--	--	--	--	--	--	--	--
MAR , 1962											
07-07	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	4.2	--	--	3.1	--	--
07...	--	--	--	--	--	4.1	--	--	3.5	--	--
07...	--	--	--	--	--	4.2	--	--	3.3	--	--
07...	--	--	--	--	--	4.9	--	--	3.3	--	--
09-10	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	4.3	--	--	3.4	--	--
09...	--	--	--	--	--	3.8	--	--	3.0	--	--
09...	--	--	--	--	--	3.9	--	--	3.4	--	--
09...	--	--	--	--	--	4.8	--	--	4.5	--	--
APR											
28...	--	--	--	--	--	--	--	--	--	--	--
28...	<.010	<.010	--	--	3.9	--	--	--	2.9	<10	K3
MAY											
10-10	--	--	--	--	3.3	--	--	--	1.6	--	K40
10...	.020	<.010	--	--	--	--	--	--	--	25	--
10...	<.010	.030	--	--	--	--	--	--	--	4	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	<.010	.030	--	--	--	--	--	--	--	12	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
13-14	--	--	--	--	--	--	--	--	--	--	--
17-17	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19-20	<.010	<.010	--	--	3.9	--	--	--	2.2	<10	K43
19...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
MAY , 1982												
28-28	30.0	--	--	--	--	--	--	--	--	--	--	--
JUN												
15-15	31.0	435	--	--	--	--	--	346	8.1	218	<4	<4
15...	--	0645	27	13.5	322	7.9	9.9	--	--	--	--	--
16-17	32.0	--	--	--	--	--	--	--	--	--	--	--
16...	--	0915	39	16.0	327	8.0	10.0	--	--	--	--	--
16-16	--	1430	--	--	--	--	--	332	8.3	210	5	<4
16...	--	1555	30	--	--	--	--	--	--	--	--	--
16...	--	1605	32	16.5	306	7.9	8.5	--	--	--	--	--
16...	--	1725	33	--	--	--	--	--	--	--	--	--
23...	--	0900	--	--	--	--	--	361	8.0	248	<4	<4
23...	--	0905	27	--	--	--	--	--	--	--	--	--
23...	--	0915	39	16.0	327	8.0	10.0	--	--	--	--	--
JUL												
08-08	33.0	1520	--	--	--	--	--	378	8.3	226	<4	<4

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)
MAY , 1982												
28-28	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
15-15	.60	--	<5	<.05	<.030	.020	<.010	<.010	4.0	2.6	<10	60
15...	--	--	--	--	--	--	--	--	--	--	--	--
16-17	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16-16	1.8	--	<5	<.05	.040	<.010	.020	.010	4.1	3.0	<10	140
16...	--	3	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	3	--	--	--	--	--	--	--	--	--	--
23...	.37	--	<5	<.05	.040	<.010	<.010	.010	4.4	3.0	<10	72
23...	--	1	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
08-08	1.2	--	<5	.08	<.030	<.010	.010	<.010	3.4	1.8	<10	K34

06413700 - RAPID CR AB WATER TREAT PLANT AT PAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
MAY , 1980												
21...	--	1445	66	18.5	383	8.3	8.7	388	8.7	215	12	--
21...	--	1450	66	--	--	--	--	--	--	--	--	--
JUN												
03...	--	0950	67	14.0	354	8.2	9.1	--	8.4	231	8	<4
03...	--	0955	67	--	--	--	--	--	--	--	--	--
14...	--	1850	158	17.0	336	7.6	7.2	--	--	--	--	--
14-14	1.0	1850	--	--	--	--	--	--	8.2	846	753	66
14...	--	2135	96	16.0	378	7.7	7.7	--	--	--	--	--
18...	2.0	2130	48	17.0	377	7.5	6.1	--	8.3	298	30	8
18...	--	2135	48	--	--	--	--	--	--	--	--	--
JUL												
09...	--	0950	79	20.0	360	8.1	9.6	352	8.6	228	14	5
09...	--	0955	79	--	--	--	--	--	--	--	--	--
12...	--	1945	201	20.0	595	7.7	6.7	--	--	--	--	--
12-12	3.0	1945	--	--	--	--	--	470	8.2	1390	990	108
12...	--	2000	183	--	--	--	--	--	--	--	--	--
12...	--	2020	163	--	--	--	--	--	--	--	--	--
12...	--	2030	162	19.0	457	7.8	7.2	--	--	--	--	--
20...	4.0	0930	15	16.0	337	7.6	8.0	344	8.0	252	34	9
20...	--	0935	15	--	--	--	--	--	--	--	--	--
25...	--	2010	134	15.5	363	7.7	8.0	--	--	--	--	--
25-25	5.0	2010	--	--	--	--	--	371	7.5	286	52	10
25...	--	2030	142	15.5	--	--	8.0	--	--	--	--	--
25...	--	2120	119	15.0	353	7.8	8.1	--	--	--	--	--
AUG												
20...	--	--	--	--	--	--	--	--	--	--	--	--
20-20	6.0	900	--	--	--	--	--	354	8.3	222	7	4
20...	--	0900	55	16.0	363	7.5	8.2	--	--	--	--	--
20...	--	1000	52	17.0	357	7.6	8.6	--	--	--	--	--
SEP												
29...	--	1025	22	--	--	--	--	--	--	--	--	--
29...	--	1030	22	14.0	389	8.1	9.6	424	8.5	260	<4	<4
OCT												
03...	--	1125	17	--	--	--	--	--	--	--	--	--
09...	--	0440	13	11.5	415	7.6	7.3	--	8.0	--	--	--
15-15	7.0	410	--	--	--	--	--	372	8.0	493	252	37
15...	--	0410	57	10.0	340	7.8	--	--	--	--	--	--
15...	--	0744	117	--	--	--	--	--	--	--	--	--
15...	--	0745	117	8.5	363	7.7	--	--	--	--	--	--
15...	--	1045	107	6.0	365	7.5	--	--	--	--	--	--

06413700 - RAPID CR AB WATER TREAT PLANT AT RAPID CITY SD

WATER QUALITY DATA

DATE	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
MAY , 1980												
21...	1.1	--	--	--	--	<15	--	--	--	<.030	--	--
21...	--	29	--	--	--	--	--	--	--	--	--	--
JUN												
03...	1.2	--	--	--	--	--	--	--	--	--	--	--
03...	--	24	--	--	--	--	--	--	--	--	--	--
14...	--	1390	66	48	32	--	--	--	--	--	--	--
14-14	160	--	--	--	--	73	--	--	--	.090	--	.340
14...	--	55	--	--	--	--	--	--	--	--	--	--
18...	17	--	--	--	--	--	18	--	--	<.030	--	.160
18...	--	78	--	--	--	--	--	--	--	--	--	--
JUL												
09...	1.5	--	--	--	--	<5	--	--	--	<.030	--	.050
09...	--	25	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12-12	450	--	--	--	--	--	--	1.2	--	.480	--	.400
12...	--	1690	96	70	59	--	--	--	--	--	--	--
12...	--	848	95	65	52	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
20...	14	--	--	--	--	--	16	.31	--	<.030	--	.140
20...	--	79	--	--	--	--	--	--	--	--	--	--
25...	--	88	--	--	--	--	--	--	--	--	--	--
25-25	22	--	--	--	--	--	18	.08	--	.080	--	.260
25...	--	--	--	--	--	--	--	.67	--	--	--	--
25...	--	99	--	--	--	--	--	--	--	--	--	--
AUG												
20...	--	--	--	--	--	--	--	.32	--	--	--	--
20-20	4.2	--	--	--	--	--	<15	.41	--	.070	--	.080
20...	--	470	--	--	--	--	--	--	--	--	--	--
20...	--	74	--	--	--	--	--	--	--	--	--	--
SEP												
29...	--	116	--	--	--	--	--	--	--	--	--	--
29...	1.3	--	--	--	--	<5	--	<.05	--	<.030	--	.050
OCT												
03...	24	--	--	--	--	--	--	--	--	--	--	.060
09...	--	--	--	--	--	--	--	1.1	.040	--	.000	.000
15-15	120	--	--	--	--	34	--	.55	--	.310	--	.450
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	368	83	65	64	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	312	84	70	57	--	--	--	--	--	--	--

06413700 - RAPID CR AB WATER TREAT PLANT AT RAPID CITY SD

WATER QUALITY DATA

DATE	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
MAY , 1980												
21...	--	--	--	--	--	--	--	--	--	3.0	--	K6
21...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
03...	.030	--	--	--	3.6	--	--	--	--	5.0	--	K20
03...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14-14	.570	--	--	--	4.4	--	--	--	--	5.0	--	K14000
14...	--	--	--	--	--	--	--	--	--	--	--	--
18...	.040	<.010	--	--	4.7	--	--	--	--	4.0	--	K700
18...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
09...	<.010	<.010	--	--	3.8	--	--	--	--	2.0	--	K80
09...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12-12	.590	.180	--	--	3.3	--	--	--	--	3.6	--	K12000
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
20...	.040	.010	--	--	3.8	--	--	--	--	1.3	--	3200
20...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
25-25	.050	<.010	--	--	3.9	--	--	--	--	4.2	--	K2100
25...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
20...	--	--	--	--	--	--	--	--	--	--	--	--
20-20	.020	<.010	--	--	4.1	--	--	--	--	3.5	--	K1200
20...	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	.010	<.010	--	--	4.5	--	--	--	--	3.2	--	--
OCT												
03...	--	.010	65	24	--	5.6	4.0	170	110	4.2	--	--
09...	.060	--	52	23	--	5.1	2.8	170	60	3.5	3	--
15-15	.230	.040	--	--	3.2	--	--	--	--	3.1	--	K2000
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--

06413700 - RAPID CR AB WATER TREAT PLANT AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
OCT , 1980										
15...	--	1610	57	--	--	--	--	--	--	--
FEB , 1981										
18...	--	1100	25	6.0	410	8.0	10.1	456	8.4	286
APR										
29...	--	1430	27	17.5	370	8.5	9.0	381	8.8	260
MAY										
06-07	11.0	935	--	--	--	--	--	369	8.3	232
06...	--	0930	127	11.5	355	8.1	9.5	--	--	--
06...	--	1140	127	11.5	357	8.1	9.9	--	--	--
06...	--	1522	137	11.0	355	8.1	9.8	--	--	--
06...	--	1820	130	10.5	355	8.3	9.6	--	--	--
06...	--	2158	123	10.0	363	8.1	10.2	--	--	--
07...	--	0240	120	9.5	365	8.0	8.0	--	--	--
17-18	14.0	918	--	--	--	--	--	374	8.1	319
17...	--	0910	143	10.5	325	7.9	8.8	--	--	--
17...	--	0920	149	10.5	--	--	--	--	--	--
17...	--	1206	173	--	--	--	--	--	--	--
17...	--	1431	175	10.5	373	7.9	8.9	--	--	--
17...	--	1734	173	--	--	--	--	--	--	--
17...	--	2128	156	9.5	351	8.0	9.2	--	--	--
18...	--	0817	112	9.0	363	7.9	9.5	--	--	--
18...	--	0820	110	9.0	--	--	--	--	--	--
23...	15.0	--	--	--	--	--	--	--	--	--
23...	--	0950	72	12.0	390	8.3	--	--	--	--
JUN										
24...	--	1018	38	19.5	353	8.4	8.4	--	--	--
24...	--	1020	38	19.5	--	--	--	373	8.5	244
24...	--	1030	38	10.0	--	--	--	--	--	--
JUL										
01-02	17.0	2300	--	--	--	--	--	346	8.1	326
01...	--	2305	121	--	--	--	--	--	--	--
01...	--	2350	149	--	--	--	--	--	--	--
02...	--	0122	121	--	--	--	--	--	--	--
13-13	18.0	325	--	--	--	--	--	371	8.0	258
13...	--	0415	183	14.5	361	7.8	6.9	--	--	--
13...	--	0425	181	14.5	--	--	--	--	--	--
13...	--	0530	166	14.0	355	7.8	7.1	--	--	--
17-18	--	--	--	--	--	--	--	--	--	--
23...	20.0	1925	64	--	--	--	--	381	8.6	306
23...	--	1940	67	19.5	346	8.1	7.3	--	--	--

06413700 - RAPID CR AB WATER TREAT PLANT AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	TURBIDITY (NTU)	SEDIMENT, SUSPENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEMICAL (LOW LEVEL) (MG/L)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)
OCT , 1980									
15...	--	--	--	105	--	--	--	--	--
FEB , 1981									
18...	<4	<4	1.6	14	--	--	--	<5	.09
APR									
29...	<4	<4	1.6	15	--	--	--	6	.21
MAY									
06-07	9	<4	3.9	--	--	--	--	6	.21
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
17-18	67	8	25	--	--	--	--	12	.40
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	125	69	68	52	--	--
17...	--	--	--	226	60	47	36	--	--
17...	--	--	--	174	69	50	44	--	--
17...	--	--	--	71	86	74	61	--	--
17...	--	--	--	56	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	20	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
JUN									
24...	--	--	--	--	--	--	--	--	--
24...	<4	4	1.8	--	--	--	--	10	<.05
24...	--	--	--	8	--	--	--	--	--
JUL									
01-02	100	13	30	--	--	--	--	24	.88
01...	--	--	--	69	80	74	65	--	--
01...	--	--	--	99	84	61	59	--	--
02...	--	--	--	90	84	70	8	--	--
13-13	23	6	9.2	--	--	--	--	11	.21
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	31	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
17-18	--	--	--	--	--	--	--	--	--
23...	10	<4	4.5	--	--	--	--	6	<.05
23...	--	--	--	--	--	--	--	--	--

06413700 - RAPID CR AB WATER TREAT PLANT AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
OCT , 1980									
15...	--	--	--	--	--	--	--	--	--
FEB , 1981									
18...	<.030	.210	.010	<.010	5.6	3.9	<10	--	K160
APR									
29...	<.030	.030	.020	<.010	5.1	3.5	<10	--	<5
MAY									
06-07	.130	.060	.030	.010	3.8	4.6	<10	<10	K45
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
17-18	<.030	.120	.070	.020	4.1	5.0	<10	<10	K4000
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
JUN									
24...	--	--	--	--	--	--	--	--	--
24...	<.030	.050	.010	.010	4.6	3.5	<10	--	K160
24...	--	--	--	--	--	--	--	--	--
JUL									
01-02	<.030	.080	.110	.020	3.4	3.3	30	<10	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
13-13	.070	.090	.050	.020	3.6	2.2	<10	<10	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
17-18	--	--	--	--	--	--	--	<0	--
23...	<.030	.040	.020	<.010	4.2	2.0	<10	<10	K650
23...	--	--	--	--	--	--	--	--	--

06413700 - RAPID CR AB WATER TREAT PLANT AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
JUL , 1981										
25-25	21.0	721	--	--	--	--	--	386	8.1	--
25...	--	0735	328	--	--	--	--	--	--	--
25...	--	0950	121	--	--	--	--	--	--	--
25...	--	1027	102	17.0	415	7.7	6.6	--	--	--
25...	--	1220	71	17.5	397	7.9	7.0	--	--	--
DEC										
10...	--	0915	20	--	--	--	--	415	8.2	--
10...	--	0920	20	4.5	411	7.8	9.6	--	--	--
20...	--	--	--	--	--	--	--	534	8.2	--
20...	--	1230	22	--	--	--	--	--	--	--
20-20	23.0	1230	--	--	--	--	--	511	8.4	--
20...	--	1235	23	5.5	520	8.1	9.5	--	--	--
20...	--	1430	25	--	--	--	--	--	--	--
20...	--	1435	25	--	--	--	--	--	--	--
20...	--	1440	25	5.0	548	8.1	9.2	--	--	--
20...	--	1625	29	--	--	--	--	--	--	--
20...	--	1630	29	4.0	545	8.0	8.8	--	--	--
MAR , 1982										
07-07	24.0	--	--	--	--	--	--	--	--	--
07...	--	1250	20	6.0	436	7.8	--	--	--	--
07...	--	1515	20	6.5	473	7.8	--	--	--	--
07...	--	1740	19	5.5	439	7.9	--	--	--	--
07...	--	2100	21	3.5	412	7.7	--	--	--	--
09-10	25.0	--	--	--	--	--	--	--	--	--
09...	--	1045	17	6.0	416	7.8	11.0	--	--	--
09...	--	1415	42	7.0	664	7.9	10.2	--	--	--
09...	--	1720	40	5.0	524	7.8	11.3	--	--	--
09...	--	2035	27	4.0	432	7.7	11.4	--	--	--
APR										
28...	--	0835	16	9.5	426	7.8	10.9	--	--	--
28...	--	0840	16	--	--	--	--	443	8.3	--
28...	--	0845	16	--	--	--	--	--	--	--
MAY										
10-10	26.0	555	--	--	--	--	--	385	8.1	--
10...	--	0555	63	--	--	--	--	383	8.2	214
10...	--	0600	64	--	--	--	--	--	--	--
10...	--	0708	92	--	--	--	--	278	8.1	221
10...	--	0710	92	--	--	--	--	--	--	--
10...	--	0720	93	12.5	309	8.1	8.1	--	--	--
10...	--	0905	83	--	--	--	--	379	8.0	222

06413700 - RAPID CR AB WATER TREAT PLANT AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)
JUL , 1981										
25-25	858	588	48	220	--	--	--	--	--	32
25...	--	--	--	--	1290	48	33	27	--	--
25...	--	--	--	--	225	84	70	66	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
DEC										
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20-20	324	8	<4	7.1	--	--	--	--	9	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	14	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
MAR , 1982										
07-07	--	--	--	--	--	--	--	--	--	--
07...	--	7	<4	2.4	--	--	--	--	--	--
07...	296	12	<4	7.0	--	--	--	--	--	--
07...	292	11	<4	4.8	--	--	--	--	--	--
07...	--	9	<4	4.6	--	--	--	--	--	--
09-10	--	--	--	--	--	--	--	--	--	--
09...	--	10	<4	3.1	--	--	--	--	--	--
09...	964	514	52	210	--	--	--	--	--	--
09...	551	181	24	190	--	--	--	--	--	--
09...	--	32	5	19	--	--	--	--	--	--
APR										
28...	--	--	--	--	--	--	--	--	--	--
28...	270	7	<4	2.1	--	--	--	--	5	--
28...	--	--	--	--	3	--	--	--	--	--
MAY										
10-10	--	157	19	60	--	--	--	--	26	--
10...	245	34	--	--	--	--	--	--	--	--
10...	--	--	--	--	63	--	--	--	--	--
10...	454	450	--	--	--	--	--	--	--	--
10...	--	--	--	--	269	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	397	174	--	--	--	--	--	--	--	--

06413700 - RAPID CR AB WATER TREAT PLANT AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
JUL , 1981									
25-25	1.3	--	--	.070	--	.120	.040	.030	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
DEC									
10...	.31	.33	.110	<.070	.180	.160	.070	--	--
10...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20-20	<.05	--	--	<.030	--	--	.020	<.010	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
MAR , 1982									
07-07	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
09-10	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
APR									
28...	--	--	--	--	--	--	--	--	--
28...	<.05	--	--	.030	--	.090	.020	<.010	--
28...	--	--	--	--	--	--	--	--	--
MAY									
10-10	--	--	--	--	--	--	--	--	--
10...	1.0	.59	.070	<.060	<.100	<.100	.060	.030	.03
10...	--	--	--	--	--	--	--	--	--
10...	1.9	.67	.200	.110	.170	.170	.210	.070	.09
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	1.4	.57	.170	.060	.120	.130	.190	<.010	.09

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WATER QUALITY DATA

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)
JUL , 1981									
25-25	--	--	2.7	--	--	--	1.8	26	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
DEC									
10...	54	22	--	5.0	2.7	57	3.5	--	--
10...	--	--	--	--	--	--	--	--	--
20...	71	24	--	25	3.9	61	21	--	--
20...	--	--	--	--	--	--	--	--	--
20-20	--	--	17	--	--	--	24	<10	<20
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
MAR , 1982									
07-07	--	--	--	--	--	--	--	--	--
07...	--	--	--	5.4	--	--	5.0	--	--
07...	--	--	--	12	--	--	16	--	--
07...	--	--	--	8.6	--	--	11	--	--
07...	--	--	--	8.1	--	--	9.3	--	--
09-10	--	--	--	--	--	--	--	--	--
09...	--	--	--	4.9	--	--	3.8	--	--
09...	--	--	--	53	--	--	83	--	--
09...	--	--	--	20	--	--	28	--	--
09...	--	--	--	8.2	--	--	10	--	--
APR									
28...	--	--	--	--	--	--	--	--	--
28...	--	--	5.5	--	--	--	4.3	<10	K20
28...	--	--	--	--	--	--	--	--	--
MAY									
10-10	--	--	4.0	--	--	--	3.2	--	560
10...	--	--	--	--	--	--	--	15	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	47	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	41	--

06413700 - RAPID CR AB WATER TREAT PLANT AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
MAY , 1982											
10...	--	0915	78	--	--	--	--	--	--	--	--
10...	--	0920	78	12.5	352	8.0	8.8	--	--	--	--
10...	--	1130	60	--	--	--	--	396	7.9	223	253
10...	--	1140	59	--	--	--	--	--	--	--	--
10...	--	1145	59	14.0	369	8.3	8.9	--	--	--	--
13-14	27.0	--	--	--	--	--	--	--	--	--	--
17-17	28.0	--	--	--	--	--	--	--	--	--	--
19...	--	2020	--	--	--	--	--	380	--	--	--
19-20	29.0	2040	--	--	--	--	--	406	8.0	--	358
19...	--	2220	75	--	--	--	--	--	--	--	--
19...	--	2350	52	--	--	--	--	420	--	--	--
19...	--	2400	52	14.0	399	7.5	9.0	--	--	--	--
20...	--	0140	41	--	--	--	--	--	--	--	--
20...	--	0650	57	12.5	364	7.0	7.5	--	--	--	--
20...	--	1040	53	13.0	394	7.7	10.5	--	--	--	--
20...	--	1335	50	--	--	--	--	--	--	--	--
20...	--	1340	50	13.5	411	7.9	10.7	--	--	--	--
28-28	30.0	--	--	--	--	--	--	--	--	--	--
JUN											
15-15	31.0	415	--	--	--	--	--	442	8.0	--	440
15...	--	0610	45	15.5	425	7.7	8.9	--	--	--	--
16-17	32.0	--	--	--	--	--	--	--	--	--	--
16-16	--	1420	--	--	--	--	--	437	8.1	--	626
16...	--	1455	93	--	--	--	--	--	--	--	--
16...	--	1530	79	19.0	330	7.5	8.2	--	--	--	--
16...	--	1535	78	--	--	--	--	--	--	--	--
16...	--	1625	70	--	--	--	--	620	--	--	--
16...	--	1750	72	--	--	--	--	--	--	--	--
16...	--	1847	125	--	--	--	--	430	--	--	--
16...	--	1900	141	17.5	372	7.5	7.8	--	--	--	--
23...	--	0935	--	--	--	--	--	407	8.4	--	284
23...	--	0945	35	--	--	--	--	--	--	--	--
23...	--	0950	35	19.5	380	8.4	10.6	--	--	--	--
JUL											
08-08	33.0	1500	--	--	--	--	--	384	8.3	--	258

06413700 - RAPID CR AB WATER TREAT PLANT AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)
MAY , 1982											
10...	--	--	--	167	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	29	--	--	--	--	--	--	--	--	.70	.48
10...	--	--	--	28	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
13-14	--	--	--	--	--	--	--	--	--	--	--
17-17	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	690	77	54	44	--	--	--	--
19-20	104	12	45	--	--	--	--	20	--	.29	--
19...	--	--	--	690	77	54	44	--	--	--	--
19...	--	--	--	113	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	44	--	--	--	--	--	--	--
20...	--	--	--	39	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	18	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
28-28	--	--	--	--	--	--	--	--	--	--	--
JUN											
15-15	149	17	75	--	--	--	--	16	--	.47	--
15...	--	--	--	--	--	--	--	--	--	--	--
16-17	--	--	--	--	--	--	--	--	--	--	--
16-16	325	32	100	--	--	--	--	--	38	.65	--
16...	--	--	--	151	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	178	--	--	--	--	--	--	--
16...	--	--	--	589	98	74	58	--	--	--	--
16...	--	--	--	107	--	--	--	--	--	--	--
16...	--	--	--	514	84	58	39	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
23...	<4	<4	1.5	--	--	--	--	<5	--	.06	--
23...	--	--	--	4	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
JUL											
08-08	28	4	12	--	--	--	--	10	--	.17	--

06413700 - RAPID CR AB WATER TREAT PLANT AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)
MAY , 1982										
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	.080	.060	<.100	<.100	.050	.030	--	--	16	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
13-14	--	--	--	--	--	--	--	--	--	--
17-17	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19-20	--	<.030	--	.120	.100	.010	4.9	3.6	14	700
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
28-28	--	--	--	--	--	--	--	--	--	--
JUN										
15-15	--	.060	--	.140	.110	.010	4.9	4.3	21	K3800
15...	--	--	--	--	--	--	--	--	--	--
16-17	--	--	--	--	--	--	--	--	--	--
16-16	--	.100	--	.090	.250	.010	4.5	3.6	36	3100
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
23...	--	<.030	--	.040	.020	.010	5.4	4.1	<10	96
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
JUL										
08-08	--	.040	--	.030	.040	.010	3.8	2.3	11	660

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
MAY , 1980										
21...	--	1400	66	20.0	430	8.3	8.8	434	8.7	247
21...	--	1405	66	--	--	--	--	--	--	--
JUN										
03...	--	1055	75	15.5	394	8.3	9.5	--	8.0	275
03...	--	1100	75	--	--	--	--	--	--	--
14...	--	1920	170	17.0	415	7.8	7.5	--	--	--
14-14	1.0	1920	--	--	--	--	--	--	8.3	884
14...	--	2100	115	16.5	443	7.6	7.4	--	--	--
18...	2.0	2020	46	18.5	445	8.5	6.8	--	8.4	451
18...	--	2025	46	--	--	--	--	--	--	--
JUL										
09...	--	0845	52	19.5	400	7.9	9.7	387	8.6	284
09...	--	0850	52	--	--	--	--	--	--	--
12...	--	2100	132	19.5	525	7.7	7.2	--	--	--
12-12	3.0	2100	--	--	--	--	--	422	8.2	822
12...	--	2120	127	19.0	482	7.7	7.2	--	--	--
20...	4.0	--	--	--	--	--	--	--	--	--
20...	--	0950	111	16.0	365	7.7	8.3	381	7.0	253
20...	--	0953	111	--	--	--	--	--	--	--
25...	--	2040	125	15.5	367	7.8	8.0	--	--	--
25-25	5.0	2040	--	--	--	--	--	359	8.2	300
25...	--	2100	129	15.5	--	--	--	--	--	--
25...	--	2145	111	15.5	379	7.8	8.1	--	--	--
AUG										
20...	--	--	--	--	--	--	--	--	--	--
20-20	6.0	925	--	--	--	--	--	396	8.2	294
20...	--	0925	66	16.0	392	7.5	8.0	--	--	--
20...	--	1025	61	17.0	410	7.6	9.2	--	--	--
SEP										
29...	--	1110	24	15.0	462	8.1	10.6	500	8.6	320
29...	--	1115	24	--	--	--	--	--	--	--
OCT										
03...	--	1110	16	--	--	--	--	--	8.3	--
09...	--	0505	13	11.5	548	7.6	7.4	--	8.0	--
15-15	7.0	400	--	--	--	--	--	409	8.3	552
15...	--	0400	67	10.5	357	8.1	--	--	--	--
15...	--	0740	153	8.0	428	8.0	--	--	--	--
15...	--	0745	150	8.0	--	--	--	--	--	--
15...	--	1105	128	6.0	450	7.8	--	--	--	--
15...	--	1110	123	6.0	--	--	--	--	--	--

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)
MAY , 1980									
21...	14	--	1.3	--	--	--	--	<15	--
21...	--	--	--	42	--	--	--	--	--
JUN									
03...	8	<4	1.6	--	--	--	--	--	--
03...	--	--	--	43	--	--	--	--	--
14...	--	--	--	913	87	45	32	--	--
14-14	622	42	250	--	--	--	--	70	--
14...	--	--	--	358	--	--	--	--	--
18...	144	20	60	--	--	--	--	--	22
18...	--	--	--	141	--	--	--	--	--
JUL									
09...	14	5	2.0	--	--	--	--	<5	--
09...	--	--	--	55	--	--	--	--	--
12...	--	--	--	746	92	62	62	--	--
12-12	425	35	250	--	--	--	--	--	--
12...	--	--	--	516	88	71	70	--	--
20...	--	--	--	--	--	--	--	--	--
20...	36	6	11	--	--	--	--	--	20
20...	--	--	--	42	--	--	--	--	--
25...	--	--	--	70	--	--	--	--	--
25-25	60	10	26	--	--	--	--	--	18
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	33	--	--	--	--	--
AUG									
20...	--	--	--	--	--	--	--	--	--
20-20	55	7	27	--	--	--	--	--	16
20...	--	--	--	94	--	--	--	--	--
20...	--	--	--	51	--	--	--	--	--
SEP									
29...	<4	<4	1.4	--	--	--	--	<5	--
29...	--	--	--	53	--	--	--	--	--
OCT									
03...	--	--	.90	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
15-15	278	40	150	--	--	--	--	--	48
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	418	83	68	62	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	402	85	81	58	--	--

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CALCIUM DIS-SOLVED (MG/L AS CA)
MAY , 1980									
21...	--	--	<.030	--	--	--	--	3.3	--
21...	--	--	--	--	--	--	--	--	--
JUN									
03...	--	--	--	--	--	.030	--	--	--
03...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14-14	--	--	.080	--	.360	.450	--	--	--
14...	--	--	--	--	--	--	--	--	--
18...	--	--	<.030	--	.180	.120	.020	--	--
18...	--	--	--	--	--	--	--	--	--
JUL									
09...	--	--	<.030	--	.070	.020	<.010	--	--
09...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12-12	.85	--	.360	--	.360	.300	.110	--	--
12...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	.23	--	.080	--	.160	.040	.010	--	--
20...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25-25	.12	--	.050	--	.240	.050	<.010	--	--
25...	.65	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
AUG									
20...	.40	--	--	--	--	--	--	--	--
20-20	.50	--	.040	--	.110	.040	<.010	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
SEP									
29...	<.05	--	<.030	--	.060	.010	<.010	--	--
29...	--	--	--	--	--	--	--	--	--
OCT									
03...	--	--	--	--	.010	--	.010	--	48
09...	.59	.050	--	.100	.010	.030	--	--	75
15-15	1.2	--	.210	--	.660	.250	.040	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECUV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECUV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
MAY , 1980									
21...	--	--	--	--	--	--	4.0	--	110
21...	--	--	--	--	--	--	--	--	--
JUN									
03...	--	3.9	--	--	--	--	4.0	--	K30
03...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14-14	--	5.0	--	--	--	--	5.0	--	23000
14...	--	--	--	--	--	--	--	--	--
18...	--	5.3	--	--	--	--	4.0	--	K1100
18...	--	--	--	--	--	--	--	--	--
JUL									
09...	--	4.0	--	--	--	--	2.1	--	150
09...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12-12	--	3.5	--	--	--	--	3.4	--	K7100
12...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	3.9	--	--	--	--	1.5	--	K1400
20...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25-25	--	3.9	--	--	--	--	2.8	--	K2200
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
AUG									
20...	--	--	--	--	--	--	--	--	--
20-20	--	4.3	--	--	--	--	3.9	--	3400
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
SEP									
29...	--	4.8	--	--	--	--	3.4	--	--
29...	--	--	--	--	--	--	--	--	--
OCT									
03...	20	--	4.9	2.8	150	58	3.2	--	--
09...	26	--	5.7	4.1	180	120	4.6	4	--
15-15	--	3.9	--	--	--	--	3.9	--	3900
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
OCT , 1980										
15...	--	1610	64	10.0	--	--	--	--	--	--
FEB , 1981										
18...	--	1125	26	6.5	480	7.8	10.4	527	8.4	366
APR										
29...	--	1450	22	18.0	436	8.5	10.7	452	8.7	336
MAY										
06-07	11.0	845	--	--	--	--	--	394	8.3	263
07...	--	0210	141	9.5	387	8.0	10.0	--	--	--
17-18	14.0	530	--	--	--	--	--	466	8.1	434
17...	--	0850	177	10.5	--	--	--	--	--	--
17...	--	0858	147	10.5	373	8.0	8.9	--	--	--
17...	--	1230	216	--	--	--	--	--	--	--
17...	--	1458	208	10.5	499	7.9	9.0	--	--	--
17...	--	1749	196	--	--	--	--	--	--	--
17...	--	2037	191	10.0	470	8.0	9.1	--	--	--
17...	--	2041	191	--	--	--	--	--	--	--
18...	--	1157	169	11.0	435	8.1	9.8	--	--	--
18...	--	1159	111	--	--	--	--	--	--	--
23-23	15.0	--	--	--	--	--	--	--	--	--
23...	--	0930	94	12.0	475	8.0	9.2	--	--	--
JUN										
03...	16.0	2055	49	18.0	455	--	--	464	8.0	364
24...	--	1055	23	20.5	437	8.4	9.2	--	--	--
24...	--	1100	--	--	--	--	--	458	8.6	308
24...	--	1109	21	20.5	--	--	--	--	--	--
JUL										
01-02	17.0	2320	--	--	--	--	--	396	8.1	358
01...	--	2340	151	--	--	--	--	--	--	--
01...	--	2345	151	18.0	--	--	--	--	--	--
02...	--	0020	146	--	--	--	--	--	--	--
02...	--	0100	125	--	--	--	--	--	--	--
13-13	18.0	255	--	--	--	--	--	392	8.0	284
13...	--	0350	202	--	--	--	--	--	--	--
13...	--	0353	463	15.0	353	7.8	7.1	--	--	--
13...	--	0505	199	14.5	393	7.7	7.1	--	--	--
13...	--	0508	189	14.5	--	--	--	--	--	--
17-18	--	--	--	--	--	--	--	--	--	--
18...	--	1910	--	--	--	--	--	363	--	--
18-18	19.0	1910	--	--	--	--	--	--	--	--
18...	--	2015	--	--	--	--	--	417	--	--

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)
OCT , 1980										
15...	--	--	--	213	--	--	--	--	--	--
FEB , 1981										
18...	12	<4	2.9	21	--	--	--	<5	--	.11
APR										
29...	6	<4	1.9	12	--	--	--	6	--	.28
MAY										
06-07	14	<4	5.8	--	--	--	--	25	--	.26
07...	--	--	--	--	--	--	--	--	--	--
17-18	104	13	40	--	--	--	--	24	--	.28
17...	--	--	--	212	71	--	54	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	388	70	49	49	--	--	--
17...	--	--	--	1140	19	14	13	--	--	--
17...	--	--	--	118	67	62	48	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	64	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	20	--	--	--	--	--	--
23-23	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	36	7	16	--	--	--	--	16	--	.36
24...	--	--	--	--	--	--	--	--	--	--
24...	4	<4	1.8	--	--	--	--	6	--	.16
24...	--	--	--	12	--	--	--	--	--	--
JUL										
01-02	94	14	37	--	--	--	--	31	--	.68
01...	--	--	--	211	83	61	60	--	--	--
01...	--	--	--	108	--	--	--	--	--	--
02...	--	--	--	192	78	59	50	--	--	--
02...	--	--	--	284	86	62	55	--	--	--
13-13	27	<4	12	--	--	--	--	32	--	.32
13...	--	--	--	24	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	30	--	--	--	--	--	--
17-18	--	--	--	--	--	--	--	--	--	--
18...	278	36	100	--	--	--	--	--	68	--
18-18	--	--	--	--	--	--	--	--	--	--
18...	202	34	80	--	--	--	--	--	56	--

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
OCT , 1980									
15...	--	--	--	--	--	--	--	--	--
FEB , 1981									
18...	<.030	.290	.040	<.010	6.1	4.5	<10	--	200
APR									
29...	<.030	.010	.020	<.010	5.6	4.4	<10	--	K20
MAY									
06-07	<.030	.060	.030	.010	4.0	3.4	<10	<10	K80
07...	--	--	--	--	--	--	--	--	--
17-18	<.030	.180	.100	.020	5.2	3.6	<10	<10	K2500
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
23-23	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
JUN									
03...	<.030	--	.040	.010	5.0	4.5	10	--	500
24...	--	--	--	--	--	--	--	--	--
24...	<.030	.040	.010	<.010	5.1	4.4	<10	--	200
24...	--	--	--	--	--	--	--	--	--
JUL									
01-02	<.030	.070	.090	.010	3.6	3.8	10	<10	4800
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
13-13	.060	.100	.060	.020	4.2	2.2	<10	<10	K6800
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
17-18	--	--	--	--	--	--	--	<0	--
18...	--	--	.190	--	--	--	--	--	--
18-18	--	--	--	--	--	--	--	--	--
18...	--	--	.170	--	--	--	--	--	--

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
JUL , 1981												
18...	--	2100	--	--	--	--	--	387	--	--	223	25
18...	--	2145	--	--	--	--	--	377	--	--	292	44
23-23	20.0	1845	--	--	--	--	--	412	8.4	376	60	8
25-25	21.0	200	--	--	--	--	--	492	8.0	966	620	70
OCT												
01...	--	1400	43	16.0	432	--	--	--	--	--	--	--
05-05	22.0	--	--	--	--	--	--	--	--	--	--	--
05...	--	0450	31	--	--	--	--	--	--	--	--	--
05...	--	0500	33	11.0	--	--	--	--	--	--	--	--
05...	--	0630	29	11.0	--	--	--	--	--	--	--	--
05...	--	0810	25	--	--	--	--	--	--	--	--	--
05...	--	0825	25	11.0	530	7.7	8.1	--	--	--	--	--
26...	--	1350	22	11.5	600	--	--	--	--	--	--	--
DEC												
10...	--	0935	25	--	--	--	--	549	8.3	--	--	--
10...	--	0940	25	4.5	528	7.8	9.9	--	--	--	--	--
20...	--	--	--	--	--	--	--	666	8.3	--	--	--
20...	--	1200	26	--	--	--	--	--	--	--	--	--
20-20	23.0	1200	--	--	--	--	--	653	8.4	438	18	4
20...	--	1210	26	5.0	536	8.1	10.0	--	--	--	--	--
20...	--	1400	30	--	--	--	--	--	--	--	--	--
20...	--	1405	32	--	--	--	--	--	--	--	--	--
20...	--	1410	31	5.0	686	8.2	9.1	--	--	--	--	--
20...	--	1705	35	--	--	--	--	--	--	--	--	--
20...	--	1710	35	4.5	650	8.0	8.5	--	--	--	--	--
MAR , 1982												
07-07	24.0	--	--	--	--	--	--	--	--	--	--	--
07...	--	1135	22	4.5	526	7.8	--	--	--	--	16	<4
07...	--	1455	22	6.5	573	7.8	--	--	--	394	18	<4
07...	--	1725	21	5.5	581	7.8	--	--	--	--	15	<4
07...	--	2040	22	4.0	534	7.7	--	--	--	377	12	<4
09-10	25.0	--	--	--	--	--	--	--	--	--	--	--
09...	--	1020	20	5.5	523	7.7	12.0	--	--	--	19	<4
09...	--	1355	33	8.0	614	8.1	10.5	--	--	604	186	23
09...	--	1700	58	5.0	693	7.8	10.1	--	--	--	439	54
09...	--	1955	42	4.0	668	7.7	11.0	--	--	--	82	12
10...	--	0110	29	--	--	--	--	566	--	390	20	6
10...	--	0510	28	--	--	--	--	550	--	--	13	<4
10...	--	0910	26	--	--	--	--	596	--	--	11	<4
APR												
28...	--	0905	20	--	--	--	--	--	--	--	--	--

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
JUL , 1981											
18...	100	--	--	41	--	--	--	--	--	--	.180
18...	150	--	--	48	--	--	--	--	--	--	.250
23-23	28	--	22	--	.34	--	--	<.030	--	.090	.060
25-25	260	--	--	42	1.3	--	--	.030	--	.160	.440
OCT											
01...	--	--	--	--	--	--	--	--	--	--	--
05-05	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
DEC											
10...	--	--	--	--	.28	.31	.090	<.070	.240	.230	.050
10...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20-20	15	--	14	--	.13	--	--	<.030	--	--	.030
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	59	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
MAR , 1982											
07-07	--	--	--	--	--	--	--	--	--	--	--
07...	6.1	--	--	--	--	--	--	--	--	--	--
07...	13	--	--	--	--	--	--	--	--	--	--
07...	8.4	--	--	--	--	--	--	--	--	--	--
07...	6.0	--	--	--	--	--	--	--	--	--	--
09-10	--	--	--	--	--	--	--	--	--	--	--
09...	5.4	--	--	--	--	--	--	--	--	--	--
09...	100	--	--	--	--	--	--	--	--	--	--
09...	220	--	--	--	--	--	--	--	--	--	--
09...	37	--	--	--	--	--	--	--	--	--	--
10...	9.1	--	--	--	--	--	--	--	--	--	--
10...	6.8	--	--	--	--	--	--	--	--	--	--
10...	5.9	--	--	--	--	--	--	--	--	--	--
APR											
26...	--	--	--	--	--	--	--	--	--	--	--

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)
JUL , 1981											
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
23-23	<.010	--	--	4.6	--	--	--	3.0	10	<10	K1700
25-25	.020	--	--	3.2	--	--	--	2.5	20	<10	7100
OCT											
01...	--	--	--	--	--	--	--	--	--	--	--
05-05	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
DEC											
10...	--	75	25	--	5.7	3.5	110	4.3	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
20...	--	53	21	--	15	2.6	100	38	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20-20	<.010	--	--	28	--	--	--	42	30	--	<20
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
MAR , 1982											
07-07	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	6.0	--	--	5.6	--	--	--
07...	--	--	--	--	15	--	--	20	--	--	--
07...	--	--	--	--	18	--	--	27	--	--	--
07...	--	--	--	--	10	--	--	13	--	--	--
09-10	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	4.5	--	--	3.2	--	--	--
09...	--	--	--	--	30	--	--	43	--	--	--
09...	--	--	--	--	38	--	--	57	--	--	--
09...	--	--	--	--	14	--	--	18	--	--	--
10...	--	--	--	--	7.7	--	--	7.6	--	--	--
10...	--	--	--	--	6.4	--	--	5.4	--	--	--
10...	--	--	--	--	6.4	--	--	5.7	--	--	--
APR											
26...	--	--	--	--	--	--	--	--	--	--	--

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
APR , 1982											
28...	--	0910	20	9.5	564	7.9	11.8	--	--	--	--
28...	--	0915	--	--	--	--	--	587	8.3	--	385
MAY											
10-10	26.0	620	--	--	--	--	--	432	8.0	--	--
10...	--	0620	96	--	--	--	--	415	7.8	244	505
10...	--	0625	98	--	--	--	--	--	--	--	--
10...	--	0720	134	--	--	--	--	383	7.8	228	480
10...	--	0750	148	--	--	--	--	426	8.0	253	668
10...	--	0800	141	--	--	--	--	--	--	--	--
10...	--	0810	143	12.0	390	7.8	8.2	--	--	--	--
10...	--	0820	148	--	--	--	--	421	8.0	248	602
10...	--	0850	129	--	--	--	--	416	7.7	256	794
10...	--	0920	111	--	--	--	--	326	7.8	276	698
10...	--	0955	94	--	--	--	--	--	--	--	--
10...	--	1000	89	12.5	441	7.9	7.7	--	--	--	--
10...	--	1050	79	--	--	--	--	319	8.1	288	406
10...	--	1150	75	--	--	--	--	483	8.4	289	345
10...	--	1210	70	--	--	--	--	--	--	--	--
10...	--	1215	68	14.5	458	8.1	9.0	--	--	--	--
13-14	27.0	--	--	--	--	--	--	--	--	--	--
13...	--	0910	86	10.0	406	7.8	11.3	--	--	--	--
17-17	28.0	1545	--	--	--	--	--	--	--	--	--
19-20	29.0	2025	--	--	--	--	--	619	8.0	--	564
19...	--	2200	101	--	--	--	--	440	--	--	--
19...	--	2315	89	--	--	--	--	460	--	--	--
20...	--	0105	71	--	--	--	--	--	--	--	--
20...	--	0115	70	14.0	580	7.3	9.1	--	--	--	--
20...	--	0715	91	--	--	--	--	--	--	--	--
20...	--	0720	94	12.5	606	7.6	7.9	--	--	--	--
20...	--	1415	73	--	--	--	--	--	--	--	--
20...	--	1420	71	13.0	742	7.8	10.8	--	--	--	--
28-28	30.0	--	--	--	--	--	--	--	--	--	--
JUN											
15-15	31.0	515	--	--	--	--	--	517	8.0	--	434
15...	--	0725	57	15.5	548	7.7	9.9	--	--	--	--
16-17	32.0	--	--	--	--	--	--	--	--	--	--
16...	--	1510	86	--	--	--	--	--	--	--	--
16-16	--	1510	--	--	--	--	--	507	8.2	--	710
16...	--	1645	84	--	--	--	--	500	--	--	--
16...	--	1655	82	19.0	500	7.4	7.6	--	--	--	--

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)
APR , 1962											
28...	--	--	--	--	--	--	--	--	--	--	--
28...	4	<4	2.3	--	--	--	--	<5	--	<.05	--
MAY											
10-10	286	36	110	--	--	--	--	56	--	--	--
10...	73	--	--	--	--	--	--	--	--	1.5	.61
10...	--	--	--	248	--	--	--	--	--	--	--
10...	292	--	--	--	--	--	--	--	--	2.4	.59
10...	356	--	--	--	--	--	--	--	--	3.2	.59
10...	--	--	--	552	68	43	33	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	304	--	--	--	--	--	--	--	--	2.2	.68
10...	416	--	--	--	--	--	--	--	--	3.0	.74
10...	364	--	--	--	--	--	--	--	--	2.5	.62
10...	--	--	--	274	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	115	--	--	--	--	--	--	--	--	1.1	.46
10...	51	--	--	--	--	--	--	--	--	.86	.48
10...	--	--	--	57	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
13-14	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
17-17	--	--	--	--	--	--	--	--	--	--	--
19-20	129	17	60	--	--	--	--	28	--	.50	--
19...	--	--	--	369	87	66	50	--	--	--	--
19...	--	--	--	489	88	61	46	--	--	--	--
20...	--	--	--	130	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	98	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	55	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
28-28	--	--	--	--	--	--	--	--	--	--	--
JUN											
15-15	86	12	50	--	--	--	--	13	--	.29	--
15...	--	--	--	--	--	--	--	--	--	--	--
16-17	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	43	--	--	--	--	--	--	--
16-16	344	36	180	--	--	--	--	--	49	.57	--
16...	--	--	--	165	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)
APR , 1982											
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	<.030	--	.110	.020	<.010	--	6.4	5.8	<10	K6
MAY											
10-10	--	--	--	--	--	--	--	5.2	5.3	--	K950
10...	.120	.130	.140	.140	.180	<.010	.06	--	--	42	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	.190	<.060	.170	.180	.270	<.010	.03	--	--	58	--
10...	.160	.090	.210	.220	.280	.060	.06	--	--	67	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	.160	.110	.220	.240	.290	.080	.09	--	--	65	--
10...	.190	.110	.230	.250	.340	.020	.06	--	--	74	--
10...	.240	.090	.230	.230	.280	<.010	.06	--	--	69	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	.100	<.060	.100	.100	.110	<.010	.03	--	--	27	--
10...	<.060	.060	<.100	<.100	.070	.030	--	--	--	13	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
13-14	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
17-17	--	--	--	--	--	--	--	--	--	--	--
19-20	--	<.030	--	.200	.110	<.010	--	6.2	7.3	29	1200
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
28-28	--	--	--	--	--	--	--	--	--	--	--
JUN											
15-15	--	.030	--	.200	.070	.010	--	5.6	5.9	12	1300
15...	--	--	--	--	--	--	--	--	--	--	--
16-17	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
16-16	--	.030	--	.160	.260	.010	--	5.4	5.1	40	K2100
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)
JUN , 1982									
16...	--	1825	172	17.5	417	7.5	8.1	--	--
16...	--	2010	141	--	--	--	--	--	--
23...	--	1020	--	--	--	--	--	490	8.4
23...	--	1025	42	--	--	--	--	--	--
23...	--	1035	42	20.5	465	8.3	11.1	--	--
JUL									
08-08	33.0	1500	--	--	--	--	--	413	8.2

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)
JUN , 1982									
16...	--	--	--	--	872	77	43	32	--
16...	--	--	--	--	783	90	53	38	--
23...	356	4	<4	1.5	--	--	--	--	<5
23...	--	--	--	--	6	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
JUL									
08-06	321	57	9	22	--	--	--	--	26

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
JUN , 1982									
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
23...	.09	<.030	.190	.010	.010	6.5	5.2	<10	91
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
JUL									
08-08	.20	.100	.080	.070	.010	4.1	4.4	20	1800

06414700 - RAPID CR AT EAST MAIN ST AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
MAY , 1980										
21...	--	1300	68	19.5	420	8.5	10.6	440	8.9	266
21...	--	1305	68	--	--	--	--	--	--	--
JUN										
03...	--	1310	68	16.5	403	8.3	9.1	--	8.7	282
03...	--	1315	68	--	--	--	--	--	--	--
14...	--	1905	146	16.0	280	7.5	--	--	--	--
14-14	1.0	1905	--	--	--	--	--	--	8.2	900
14...	--	2000	116	17.0	384	7.5	6.8	--	--	--
18...	2.0	2100	54	19.0	402	8.6	5.9	--	8.3	453
18...	--	2105	54	--	--	--	--	--	--	--
JUL										
09...	--	1140	48	22.5	392	8.1	8.8	390	8.9	294
09...	--	1145	48	--	--	--	--	--	--	--
12...	--	1905	268	22.5	257	7.8	6.3	--	--	--
12-12	3.0	1905	--	--	--	--	--	340	8.1	1400
12...	--	1910	267	--	--	--	--	--	--	--
12...	--	2050	175	20.5	547	7.7	6.2	--	--	--
20...	4.0	0940	122	17.0	335	7.5	6.7	352	8.1	323
20...	--	0945	122	--	--	--	--	--	--	--
25...	--	1935	175	17.5	346	7.4	6.9	--	--	--
25-25	5.0	1935	--	--	--	--	--	360	8.2	439
25...	--	2000	157	17.0	--	--	6.9	--	--	--
25...	--	2035	134	16.5	353	7.5	6.9	--	--	--
AUG										
20-20	6.0	915	--	--	--	--	--	378	8.3	384
20...	--	0915	92	16.5	371	7.6	7.3	--	--	--
20...	--	1020	65	16.5	376	7.7	7.8	--	--	--
20...	--	1350	55	18.0	423	8.1	9.6	--	--	--
SEP										
29...	--	1130	21	--	--	--	--	--	--	--
29...	--	1135	21	15.5	490	8.2	10.1	514	8.6	337
OCT										
09...	--	0530	12	12.5	585	7.6	7.0	--	8.0	--
15-15	7.0	520	--	--	--	--	--	327	8.2	804
15...	--	0520	189	10.0	250	8.0	--	--	--	--
15...	--	0810	217	8.0	300	7.7	--	--	--	--
15...	--	0815	214	8.0	--	--	--	--	--	--
15...	--	1130	144	5.0	480	7.5	--	--	--	--
15...	--	1135	142	5.0	--	--	--	--	--	--
15...	--	1730	62	10.0	--	--	--	--	--	--

06414700 - RAPID CR AT EAST MAIN ST AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDED (MG/L)	TUR- BID- ITY (NTU)	SEDI- MENT, SUS- PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM- ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)
MAY , 1980									
21...	19	--	2.3	--	--	--	--	<15	--
21...	--	--	--	41	--	--	--	--	--
JUN									
03...	12	<4	3.0	--	--	--	--	--	--
03...	--	--	--	38	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14-14	709	60	320	--	--	--	--	72	--
14...	--	--	--	--	--	--	--	--	--
18...	162	24	100	--	--	--	--	--	58
18...	--	--	--	138	--	--	--	--	--
JUL									
09...	14	7	3.2	--	--	--	--	<5	--
09...	--	--	--	34	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12-12	1160	96	450	--	--	--	--	--	--
12...	--	--	--	1530	82	55	53	--	--
12...	--	--	--	1970	94	57	51	--	--
20...	83	15	40	--	--	--	--	--	28
20...	--	--	--	223	--	--	--	--	--
25...	--	--	--	497	89	76	75	--	--
25-25	208	29	120	--	--	--	--	--	63
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	343	91	83	80	--	--
AUG									
20-20	91	14	60	--	--	--	--	--	30
20...	--	--	--	241	--	--	--	--	--
20...	--	--	--	272	--	--	--	--	--
20...	--	--	--	197	--	--	--	--	--
SEP									
29...	--	--	--	83	--	--	--	--	--
29...	<4	<4	1.8	--	--	--	--	<5	--
OCT									
09...	--	--	--	--	--	--	--	--	--
15-15	526	48	220	--	--	--	--	--	63
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	655	84	65	52	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	417	90	80	69	--	--
15...	--	--	--	1120	79	59	50	--	--

06414700 - RAPID CR AT EAST MAIN ST AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CALCIUM DIS-SOLVED (MG/L AS CA)
MAY , 1980									
21...	--	--	<.030	--	--	--	--	3.6	--
21...	--	--	--	--	--	--	--	--	--
JUN									
03...	--	--	--	--	--	.040	--	--	--
03...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14-14	--	--	.100	--	.440	.490	--	--	--
14...	--	--	--	--	--	--	--	--	--
18...	--	--	<.030	--	.390	.200	.020	--	--
18...	--	--	--	--	--	--	--	--	--
JUL									
09...	--	--	<.030	--	.080	.020	<.010	--	--
09...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12-12	2.7	--	.670	--	.650	.720	.320	--	--
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
20...	.55	--	.030	--	.220	.100	.020	--	--
20...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25-25	.32	--	.050	--	.460	.190	.020	--	--
25...	.87	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
AUG									
20-20	.63	--	.050	--	.160	.080	<.010	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
SEP									
29...	--	--	--	--	--	--	--	--	--
29...	.08	--	<.030	--	.040	.010	<.010	--	--
OCT									
09...	.53	.060	--	.070	.000	.040	--	--	76
15-15	1.9	--	.310	--	.540	.460	.060	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--

06414700 - RAPID CR AT EAST MAIN ST AT RAPID CITY SD

WATER QUALITY DATA

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)
MAY , 1980									
21...	--	--	--	--	--	--	4.0	--	K590
21...	--	--	--	--	--	--	--	--	--
JUN									
03...	--	5.0	--	--	--	--	5.0	--	K70
03...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14-14	--	5.3	--	--	--	--	6.0	--	25000
14...	--	--	--	--	--	--	--	--	--
18...	--	7.3	--	--	--	--	6.0	--	4100
18...	--	--	--	--	--	--	--	--	--
JUL									
09...	--	4.2	--	--	--	--	2.7	--	K90000
09...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12-12	--	4.3	--	--	--	--	4.4	--	41000
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
20...	--	4.2	--	--	--	--	.60	--	K14000
20...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25-25	--	4.6	--	--	--	--	4.4	--	26000
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
AUG									
20-20	--	5.5	--	--	--	--	5.2	--	38000
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
SEP									
29...	--	--	--	--	--	--	--	--	--
29...	--	5.7	--	--	--	--	4.3	--	--
OCT									
09...	28	--	6.7	4.4	180	140	6.0	3	--
15-15	--	5.1	--	--	--	--	5.0	--	K6900
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--

06414700 - RAPID CR AT EAST MAIN ST AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
FEB , 1981										
18...	--	1200	28	6.5	495	8.2	10.9	549	8.5	460
APR										
29...	--	1520	24	16.5	455	8.6	10.3	475	8.3	342
MAY										
06...	--	0955	120	12.0	377	8.2	9.8	--	--	--
06-07	11.0	1000	--	--	--	--	--	391	8.3	292
06...	--	1205	120	11.5	383	8.2	9.8	--	--	--
06...	--	1500	143	11.5	365	8.2	9.4	--	--	--
06...	--	1740	135	11.0	385	8.2	9.8	--	--	--
06...	--	2114	120	10.0	394	8.1	9.6	--	--	--
07-07	12.0	--	--	--	--	--	--	--	--	--
07...	--	0200	122	10.0	397	8.0	9.3	--	--	--
07...	--	0930	162	9.5	365	8.0	9.5	370	8.4	518
17-18	14.0	1008	--	--	--	--	--	403	7.9	528
17...	--	1016	285	--	--	--	--	--	--	--
17...	--	1018	289	10.5	316	8.0	8.9	--	--	--
17...	--	1305	282	--	--	--	--	--	--	--
17...	--	1518	248	10.5	422	7.9	9.0	--	--	--
17...	--	1812	227	--	--	--	--	--	--	--
17...	--	2154	206	10.0	441	7.9	9.2	--	--	--
17...	--	2156	206	--	--	--	--	--	--	--
18...	--	0843	128	9.5	446	7.9	9.8	--	--	--
18...	--	0847	128	--	--	--	--	--	--	--
23...	15.0	0845	--	--	--	--	--	--	--	--
23...	--	0857	92	11.5	--	8.3	--	--	--	--
JUN										
03-03	16.0	1950	--	--	--	--	--	288	9.0	1290
03...	--	1955	195	--	--	--	--	--	--	--
03...	--	2035	86	20.5	255	8.5	5.6	--	--	--
03...	--	2125	54	--	--	--	--	--	--	--
24...	--	1143	32	22.0	469	8.3	9.2	--	--	--
24...	--	1150	32	--	--	--	--	491	8.5	338
24...	--	1200	32	22.0	--	--	--	--	--	--
JUL										
01...	--	2315	174	--	--	--	--	--	--	--
01-02	17.0	2315	--	--	--	--	--	380	8.2	476
01...	--	2400	145	--	--	--	--	--	--	--
02...	--	0109	145	20.0	383	7.8	5.7	--	--	--
02...	--	0110	145	--	--	--	--	--	--	--
02...	--	0615	104	--	--	--	--	--	--	--

06414700 - RAPID CR AT EAST MAIN ST AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)
FEB , 1981										
18...	91	9	30	113	72	66	49	6	--	.22
APR										
29...	8	<4	3.0	15	--	--	--	7	--	.26
MAY										
06...	--	--	--	--	--	--	--	--	--	--
06-07	32	6	14	--	--	--	--	11	--	.46
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
07-07	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	223	28	130	--	--	--	--	--	--	--
17-18	218	26	90	--	--	--	--	31	--	.90
17...	--	--	--	520	65	48	37	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	505	27	14	11	--	--	--
17...	--	--	--	279	73	61	51	--	--	--
17...	--	--	--	163	57	52	41	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	145	87	43	27	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	43	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
JUN										
03-03	1020	102	380	--	--	--	--	--	150	3.5
03...	--	--	--	1340	35	15	6	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	301	93	60	45	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	<4	<4	2.3	--	--	--	--	9	--	.17
24...	--	--	--	10	--	--	--	--	--	--
JUL										
01...	--	--	--	676	70	35	22	--	--	--
01-02	216	23	85	--	--	--	--	39	--	1.2
01...	--	--	--	366	81	60	42	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	213	72	53	51	--	--	--
02...	--	--	--	32	--	--	--	--	--	--

06414700 - RAPID CR AT EAST MAIN ST AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)
FEB , 1981									
18...	<.030	.230	.040	<.010	6.5	5.4	<10	--	K70
APR									
29...	<.030	.010	.030	<.010	6.1	6.0	<10	--	K60
MAY									
06...	--	--	--	--	--	--	--	--	--
06-07	<.030	.090	.050	.020	5.1	5.4	10	<10	K380
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
07-07	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	5.5	--	--	3700
17-18	.060	.300	.200	.030	5.3	5.8	20	<10	K10000
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
JUN									
03-03	.130	--	.750	.060	6.2	6.5	190	--	5100
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	<.030	.010	.010	<.010	6.2	5.5	<10	--	200
24...	--	--	--	--	--	--	--	--	--
JUL									
01...	--	--	--	--	--	--	--	--	--
01-02	<.030	.140	.190	.020	4.2	4.8	30	<10	3600
01...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--

06414700 - RAPID CR AT EAST MAIN ST AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
JUL , 1981										
13-13	18.0	325	--	--	--	--	--	351	8.0	363
13...	--	0330	238	--	--	--	--	--	--	--
13...	--	0432	200	--	--	--	--	--	--	--
13...	--	0440	192	16.0	310	7.7	7.2	--	--	--
13...	--	0545	169	--	--	--	--	--	--	--
13...	--	0800	155	--	--	--	--	--	--	--
17-18	--	--	--	--	--	--	--	--	--	--
23-23	20.0	1903	--	--	--	--	--	--	--	--
23-23	--	1903	--	--	--	--	--	217	8.4	3030
23...	--	1904	1060	--	--	--	--	--	--	--
23...	--	2005	187	--	--	--	--	--	--	--
23...	--	2015	169	14.5	294	8.0	6.9	--	--	--
23...	--	2115	132	--	--	--	--	--	--	--
25-25	21.0	654	--	--	--	--	--	413	8.0	888
25...	--	0855	506	17.0	302	7.8	6.4	--	--	--
25...	--	1056	190	17.0	510	7.6	6.4	--	--	--
DEC										
10...	--	1000	23	--	--	--	--	577	8.3	--
10...	--	1005	23	3.5	556	8.0	9.8	--	--	--
20...	--	--	--	--	--	--	--	780	7.8	--
20...	--	1300	39	--	639	8.1	9.0	--	--	--
20-20	23.0	1300	--	--	--	--	--	935	8.3	680
20...	--	1515	43	--	--	--	--	--	--	--
20...	--	1520	43	--	--	--	--	--	--	--
20...	--	1525	43	2.5	1150	8.2	8.6	--	--	--
20...	--	1735	35	--	--	--	--	--	--	--
20...	--	1740	35	3.0	933	8.0	8.4	--	--	--
MAR , 1982										
07-07	24.0	--	--	--	--	--	--	--	--	--
07...	--	1110	24	3.0	565	7.1	--	--	--	--
07...	--	1415	25	5.5	645	7.8	--	--	--	--
07...	--	1700	25	5.5	815	7.8	--	--	--	586
07...	--	2025	24	4.0	718	7.7	--	--	--	--
07...	--	2300	24	3.0	615	7.7	--	--	--	434
09-10	25.0	--	--	--	--	--	--	--	--	--
09...	--	1000	21	2.5	545	7.7	12.5	--	--	--
09...	--	1335	58	6.0	861	7.8	10.3	--	--	1170
09...	--	1640	70	6.0	665	7.8	9.8	--	--	--
09...	--	1935	45	4.0	698	7.6	10.6	--	--	770
APR										
28...	--	0940	21	9.0	614	7.8	11.3	623	8.3	426

06414000 - RAPID CR AT EAST MAIN ST AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	TURBIDITY (NTU)	SEDIMENT, SUSPENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEMICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)
JUL , 1981									
13-13	124	18	45	--	--	--	--	34	--
13...	--	--	--	251	66	62	61	--	--
13...	--	--	--	67	83	76	72	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	41	--	--	--	--	--
13...	--	--	--	24	--	--	--	--	--
17-18	--	--	--	--	--	--	--	--	--
23-23	--	--	--	--	--	--	--	--	--
23-23	2300	235	600	--	--	--	--	--	--
23...	--	--	--	4190	61	36	26	--	230
23...	--	--	--	1620	91	71	57	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	666	91	76	64	--	--
25-25	575	65	260	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	45
25...	--	--	--	--	--	--	--	--	--
DEC									
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20-20	104	18	80	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	73
20...	--	--	--	139	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
MAR , 1982									
07-07	--	--	--	--	--	--	--	--	--
07...	17	9	7.1	--	--	--	--	--	--
07...	28	6	17	--	--	--	--	--	--
07...	64	10	40	--	--	--	--	--	--
07...	27	5	16	--	--	--	--	--	--
07...	18	4	8.0	--	--	--	--	--	--
09-10	--	--	--	--	--	--	--	--	--
09...	12	<4	5.3	--	--	--	--	--	--
09...	562	81	290	--	--	--	--	--	--
09...	563	68	240	--	--	--	--	--	--
09...	273	38	180	--	--	--	--	--	--
APR									
28...	9	4	2.8	--	--	--	--	<5	--

06414700 - RAPID CR AT EAST MAIN ST AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CALCIUM DIS-SOLVED (MG/L AS CA)
JUL , 1981									
13-13	.56	--	--	.080	--	.190	.140	.030	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
17-18	--	--	--	--	--	--	--	--	--
23-23	--	--	--	--	--	--	--	--	--
23-23	5.4	--	--	.220	--	.490	2.16	.100	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
25-25	1.5	--	--	<.030	--	.210	.490	.040	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
DEC									
10...	.36	.40	.120	<.070	.270	.250	.010	--	77
10...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	74
20...	--	--	--	--	--	--	--	--	--
20-20	.29	--	--	.050	--	--	.120	.030	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
MAR , 1982									
07-07	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
09-10	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
APR									
28...	<.05	--	--	<.030	--	.120	.020	.010	--

06414700 - RAPID CR AT EAST MAIN ST AT RAPID CITY SD

WATER QUALITY DATA

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)
JUL , 1981									
13-13	--	3.8	--	--	--	3.3	29	<10	K10000
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
17-18	--	--	--	--	--	--	--	--	--
23-23	--	--	--	--	--	--	--	<0	--
23-23	--	4.5	--	--	--	3.4	280	--	K68000
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
25-25	--	5.5	--	--	--	3.0	31	<10	25000
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
DEC									
10...	27	--	6.4	3.6	130	5.1	--	--	--
10...	--	--	--	--	--	--	--	--	--
20...	23	--	82	5.7	96	150	--	--	--
20...	--	--	--	--	--	--	--	--	--
20-20	--	87	--	--	--	130	67	--	400
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
MAR , 1982									
07-07	--	--	--	--	--	--	--	--	--
07...	--	--	7.2	--	--	6.1	--	--	--
07...	--	--	25	--	--	35	--	--	--
07...	--	--	62	--	--	91	--	--	--
07...	--	--	40	--	--	56	--	--	--
07...	--	--	20	--	--	23	--	--	--
09-10	--	--	--	--	--	--	--	--	--
09...	--	--	6.6	--	--	5.4	--	--	--
09...	--	--	86	--	--	130	--	--	--
09...	--	--	50	--	--	68	--	--	--
09...	--	--	36	--	--	49	--	--	--
APR									
28...	--	7.1	--	--	--	6.8	<10	--	K670

06414700 - RAPID CR AT EAST MAIN ST AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
APR , 1982											
28...	--	0945	--	--	--	--	--	--	--	--	--
MAY											
10-10	26.0	630	--	--	--	--	--	376	7.9	--	--
10...	--	0610	159	--	--	--	--	--	--	--	--
10...	--	0630	177	--	--	--	--	308	7.4	190	736
10...	--	0740	229	--	--	--	--	292	7.6	157	1060
10...	--	0830	174	--	--	--	--	--	--	--	--
10...	--	0835	167	11.5	352	7.7	9.7	--	--	--	--
10...	--	0840	162	--	--	--	--	393	7.8	240	907
10...	--	1035	97	--	--	--	--	482	7.9	300	659
10...	--	1150	84	--	--	--	--	494	7.1	304	492
10...	--	1155	83	--	--	--	--	--	--	--	--
10...	--	1310	72	--	--	--	--	507	8.3	308	414
13-14	27.0	--	--	--	--	--	--	--	--	--	--
17-17	28.0	--	--	--	--	--	--	--	--	--	--
19-20	29.0	2015	--	--	--	--	--	484	8.0	--	666
19...	--	2055	177	--	--	--	--	380	--	--	--
19...	--	2100	177	15.5	236	7.2	7.6	--	--	--	--
19...	--	2330	145	--	--	--	--	440	--	--	--
20...	--	0740	139	--	--	--	--	--	--	--	--
20...	--	0745	139	12.5	464	7.6	7.9	--	--	--	--
20...	--	1430	84	--	--	--	--	--	--	--	--
20...	--	1440	84	13.0	668	8.0	8.0	--	--	--	--
28-28	30.0	--	--	--	--	--	--	--	--	--	--
JUN											
15-15	31.0	220	--	--	--	--	--	473	7.9	--	518
15...	--	0755	56	15.5	569	7.7	8.6	--	--	--	--
16-17	32.0	--	--	--	--	--	--	--	--	--	--
16...	--	1525	75	--	--	--	--	500	--	--	--
16-16	--	1530	--	--	--	--	--	442	8.0	--	1090
16...	--	1625	94	20.0	482	7.7	7.3	--	--	--	--
16...	--	1630	94	--	--	--	--	--	--	--	--
16...	--	1850	247	--	--	--	--	--	--	--	--
23...	--	1110	--	--	--	--	--	555	8.4	--	384
23...	--	1115	45	--	--	--	--	--	--	--	--
23...	--	1125	45	22.0	474	8.3	10.6	--	--	--	--
JUL											
08-08	33.0	1460	--	--	--	--	--	408	8.2	--	376

06414700 - RAPID CR AT EAST MAIN ST AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)
APR , 1982											
28...	--	--	--	4	--	--	--	--	--	--	--
MAY											
10-10	532	58	220	--	--	--	--	--	97	--	--
10...	--	--	--	711	70	44	31	--	--	--	--
10...	418	--	--	--	--	--	--	--	--	3.1	.86
10...	552	--	--	--	--	--	--	--	--	3.4	.71
10...	--	--	--	660	75	55	42	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	590	--	--	--	--	--	--	--	--	2.7	.82
10...	342	--	--	--	--	--	--	--	--	2.4	.64
10...	158	--	--	--	--	--	--	--	--	1.5	.57
10...	--	--	--	145	--	--	--	--	--	--	--
10...	58	--	--	--	--	--	--	--	--	.81	.50
13-14	--	--	--	--	--	--	--	--	--	--	--
17-17	--	--	--	--	--	--	--	--	--	--	--
19-20	313	32	130	--	--	--	--	--	44	1.0	--
19...	--	--	--	1430	84	61	48	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	299	--	--	--	--	--	--	--
20...	--	--	--	144	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	63	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
28-28	--	--	--	--	--	--	--	--	--	--	--
JUN											
15-15	201	26	80	--	--	--	--	43	--	.83	--
15...	--	--	--	--	--	--	--	--	--	--	--
16-17	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	166	--	--	--	--	--	--	--
16-16	763	76	330	--	--	--	--	--	83	1.3	--
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	95	--	--	--	--	--	--	--
16...	--	--	--	1810	81	52	49	--	--	--	--
23...	12	<4	3.5	--	--	--	--	6	--	.13	--
23...	--	--	--	14	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
JUL											
08-08	122	17	36	--	--	--	--	35	--	.51	--

06414700 - RAPID CR AT EAST MAIN ST AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
APR , 1982											
28...	--	--	--	--	--	--	--	--	--	--	--
MAY											
10-10	--	--	--	--	--	--	--	9.4	6.2	--	K1200
10...	--	--	--	--	--	--	--	--	--	--	--
10...	.290	.190	.370	.360	.400	.040	.12	--	--	180	--
10...	.240	.190	.260	.280	.490	.020	.09	--	--	230	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	.240	.120	.350	.360	.360	.020	.06	--	--	110	--
10...	.180	.120	.580	.610	.270	<.010	.06	--	--	90	--
10...	.150	.070	.420	.430	.180	<.010	.06	--	--	46	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	<.060	.110	.220	.230	.090	.030	--	--	--	18	--
13-14	--	--	--	--	--	--	--	--	--	--	--
17-17	--	--	--	--	--	--	--	--	--	--	--
19-20	--	.040	--	.610	.280	.020	--	9.3	7.2	64	K14000
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
28-28	--	--	--	--	--	--	--	--	--	--	--
JUN											
15-15	--	.140	--	.230	.210	.030	--	8.0	6.1	57	3300
15...	--	--	--	--	--	--	--	--	--	--	--
16-17	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
16-16	--	.090	--	.280	.610	.020	--	7.6	5.8	120	12000
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
23...	--	.060	--	.040	.020	.010	--	7.1	6.1	<10	170
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
JUL											
08-08	--	.110	--	.100	.140	.020	--	5.1	6.1	46	7500

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
MAY , 1980										
21...	--	1050	59	16.5	460	8.4	10.0	465	8.6	288
21...	--	1055	59	--	--	--	--	--	--	--
JUN										
03...	--	1520	56	20.0	414	8.4	9.5	--	7.7	291
03...	--	1525	56	--	--	--	--	--	--	--
14...	--	1920	300	16.5	332	7.4	6.2	--	--	--
14-14	1.0	1920	--	--	--	--	--	--	8.1	1120
14...	--	2025	143	18.0	227	7.4	6.4	--	--	--
18...	--	2045	60	21.0	463	7.3	4.9	--	--	--
18-18	2.0	2045	--	--	--	--	--	--	--	--
18...	--	2200	65	20.5	475	7.5	5.0	--	--	--
JUL										
09...	--	1040	36	21.0	422	7.7	7.3	419	8.6	302
09...	--	1045	36	--	--	--	--	--	--	--
12...	--	1915	189	22.5	350	8.3	6.7	--	--	--
12-12	3.0	1915	--	--	--	--	--	331	8.2	934
12...	--	2120	152	21.0	336	7.6	6.3	--	--	--
20...	--	1015	105	17.0	358	7.5	6.6	--	--	--
20-20	4.0	1015	--	--	--	--	--	357	8.0	377
20...	--	1020	105	--	--	--	--	--	--	--
20...	--	1030	100	17.0	--	--	6.7	--	--	--
20...	--	1110	95	17.0	342	7.7	6.9	--	--	--
20...	--	1115	95	--	--	--	--	--	--	--
25...	--	2000	86	17.5	385	7.8	7.5	--	--	--
25-25	5.0	2000	--	--	--	--	--	375	8.3	398
25...	--	2030	104	17.0	--	--	7.5	--	--	--
25...	--	2050	125	17.0	408	7.8	7.6	--	--	--
AUG										
20...	--	--	--	--	--	--	--	--	--	--
20-20	6.0	940	--	--	--	--	--	414	7.4	332
20...	--	0940	58	17.0	467	7.6	7.8	--	--	--
20...	--	1040	73	17.0	460	7.6	7.8	--	--	--
20...	--	1420	49	18.0	386	7.7	7.9	--	--	--
SEP										
29...	--	1205	16	15.0	532	8.2	10.2	560	8.4	362
29...	--	1210	16	--	--	--	--	--	--	--
OCT										
09...	--	0610	4.5	13.0	686	7.4	5.7	--	7.9	--
15-15	7.0	505	--	--	--	--	--	341	8.0	748
15...	--	0505	148	9.5	401	7.6	8.3	--	--	--

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)
MAY , 1980									
21...	25	--	2.9	--	--	--	--	<15	--
21...	--	--	--	52	--	--	--	--	--
JUN									
03...	10	<4	2.1	--	--	--	--	--	--
03...	--	--	--	37	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14-14	1040	92	370	--	--	--	--	--	120
14...	--	--	--	--	--	--	--	--	--
18...	--	--	--	158	--	--	--	--	--
18-18	--	--	--	--	--	--	--	--	--
18...	--	--	--	150	--	--	--	--	--
JUL									
09...	32	9	10	--	--	--	--	<5	--
09...	--	--	--	41	--	--	--	--	--
12...	--	--	--	986	57	43	38	--	--
12-12	732	--	210	--	--	--	--	--	--
12...	--	--	--	673	79	63	55	--	--
20...	--	--	--	--	--	--	--	--	--
20-20	142	22	85	--	--	--	--	--	44
20...	--	--	--	141	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	165	--	--	--	--	--
25...	--	--	--	108	--	--	--	--	--
25-25	148	17	38	--	--	--	--	--	28
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	175	--	--	--	--	--
AUG									
20...	--	--	--	--	--	--	--	--	--
20-20	75	13	35	--	--	--	--	--	<15
20...	--	--	--	48	--	--	--	--	--
20...	--	--	--	72	--	--	--	--	--
20...	--	--	--	213	--	--	--	--	--
SEP									
29...	7	<4	3.1	--	--	--	--	<5	--
29...	--	--	--	367	--	--	--	--	--
OCT									
09...	--	--	--	--	--	--	--	--	--
15-15	492	56	180	--	--	--	--	--	74
15...	--	--	--	--	--	--	--	--	--

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CALCIUM DIS-SOLVED (MG/L AS CA)
MAY , 1980									
21...	--	--	<.030	--	--	--	--	3.2	--
21...	--	--	--	--	--	--	--	--	--
JUN									
03...	--	--	--	--	--	.040	--	--	--
03...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14-14	--	--	.140	--	.480	.840	--	--	--
14...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18-18	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
JUL									
09...	--	--	<.030	--	.070	.020	<.010	--	--
09...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12-12	2.0	--	.340	--	.380	.490	.060	--	--
12...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20-20	.90	--	.130	--	.280	.150	.010	--	--
20...	--	--	--	--	--	--	--	--	--
20...	1.0	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25-25	.58	--	<.030	--	.210	.100	<.010	--	--
25...	.49	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
AUG									
20...	.48	--	--	--	--	--	--	--	--
20-20	.68	--	.120	--	.140	.070	<.010	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
SEP									
29...	.12	--	<.030	--	.060	.010	<.010	--	--
29...	--	--	--	--	--	--	--	--	--
OCT									
09...	.96	.110	--	.150	.110	.060	--	--	84
15-15	2.0	--	.340	--	.540	.460	.050	--	--
15...	--	--	--	--	--	--	--	--	--

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06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
MAY , 1980									
21...	--	--	--	--	--	--	5.0	--	K340
21...	--	--	--	--	--	--	--	--	--
JUN									
03...	--	5.9	--	--	--	--	5.0	--	K35
03...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14-14	--	5.3	--	--	--	--	6.0	--	35000
14...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18-18	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
JUL									
09...	--	5.0	--	--	--	--	3.3	--	K690
09...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12-12	--	4.7	--	--	--	--	4.0	--	29000
12...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20-20	--	5.0	--	--	--	--	2.6	--	22000
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25-25	--	4.8	--	--	--	--	3.6	--	2900
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
AUG									
20...	--	--	--	--	--	--	--	--	--
20-20	--	6.4	--	--	--	--	8.0	--	K9500
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
SEP									
29...	--	7.3	--	--	--	--	5.6	--	--
29...	--	--	--	--	--	--	--	--	--
OCT									
09...	33	--	12	4.8	190	160	10	6	--
15-15	--	6.3	--	--	--	--	5.8	--	2500
15...	--	--	--	--	--	--	--	--	--

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
OCT , 1980										
15...	--	0825	244	7.5	238	7.8	8.5	--	--	--
15...	--	0845	244	7.5	--	--	--	--	--	--
15...	--	1244	132	--	--	--	--	--	--	--
15...	--	1245	132	5.0	335	8.1	8.2	--	--	--
15...	--	1708	153	9.5	--	--	--	--	--	--
FEB , 1981										
18...	--	1245	25	5.0	513	8.2	12.1	570	8.5	395
APR										
29...	--	1550	22	--	--	--	--	544	8.5	388
29...	--	1600	22	17.0	523	8.3	9.9	--	--	--
MAY										
02-02	10.0	1820	--	--	--	--	--	414	8.1	1250
06-06	11.0	905	--	--	--	--	--	408	8.3	324
06...	--	1610	13	11.5	387	8.0	8.2	--	--	--
06...	--	2055	107	10.5	400	8.1	9.6	--	--	--
07-07	12.0	720	--	--	--	--	--	410	8.3	348
07...	--	0130	108	10.0	405	8.1	9.1	--	--	--
16-18	14.0	2145	--	--	--	--	--	418	8.0	476
17...	--	1000	302	--	330	8.2	--	--	--	--
17...	--	1116	325	--	--	--	--	--	--	--
17...	--	1230	318	10.0	350	8.2	--	--	--	--
17...	--	1750	237	--	--	--	--	--	--	--
17...	--	1755	235	10.5	--	--	--	--	--	--
18...	--	0835	115	10.0	490	8.2	--	--	--	--
23-23	15.0	420	--	--	--	--	--	409	7.8	426
23...	--	0905	92	12.0	393	7.7	8.7	--	--	--
JUN										
03-03	16.0	2030	--	--	--	--	--	429	8.5	558
03...	--	2035	126	20.5	--	--	--	--	--	--
03...	--	2058	155	20.5	--	--	--	--	--	--
03...	--	2146	79	20.5	--	--	--	--	--	--
24...	--	1224	20	22.5	594	8.0	10.0	--	--	--
24...	--	1225	--	--	--	--	--	610	8.4	441
24...	--	1240	20	22.5	--	--	--	--	--	--
JUL										
01...	--	2330	77	--	--	--	--	--	--	--
01-02	17.0	2345	--	--	--	--	--	398	8.0	392
02...	--	0035	156	--	--	--	--	--	--	--
02...	--	0042	150	20.5	370	7.6	5.4	--	--	--
13-13	18.0	315	--	--	--	--	--	381	8.0	372

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WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)
OCT , 1980										
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	667	70	58	43	--	--	--
15...	--	--	--	453	95	83	75	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	732	56	41	33	--	--	--
FEB , 1981										
18...	6	<4	2.3	10	--	--	--	6	--	.14
APR										
29...	12	4	3.8	10	--	--	--	7	--	.27
29...	--	--	--	--	--	--	--	--	--	--
MAY										
02-02	865	115	320	--	--	--	--	--	130	4.0
06-06	60	8	24	--	--	--	--	16	--	.53
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
07-07	90	12	55	--	--	--	--	24	--	.76
07...	--	--	--	--	--	--	--	--	--	--
16-16	181	22	70	--	--	--	--	35	--	.59
17...	--	--	--	418	66	46	36	--	--	--
17...	--	--	--	479	74	57	47	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	233	75	67	59	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	38	--	--	--	--	--	--
23-23	145	20	85	--	--	--	--	36	--	.45
23...	--	--	--	--	--	--	--	--	--	--
JUN										
03-03	251	32	90	--	--	--	--	--	45	1.1
03...	--	--	--	237	65	35	26	--	--	--
03...	--	--	--	359	79	47	32	--	--	--
03...	--	--	--	365	92	46	34	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	9	<4	3.7	--	--	--	--	6	--	.37
24...	--	--	--	22	--	--	--	--	--	--
JUL										
01...	--	--	--	48	--	--	--	--	--	--
01-02	135	19	55	--	--	--	--	40	--	1.1
02...	--	--	--	299	86	70	56	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
13-13	113	14	38	--	--	--	--	30	--	.59

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WATER QUALITY DATA

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	CHLORIDE, DISSOLVED (MG/L AS CL)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML)
OCT , 1980									
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
FEB , 1981									
18...	<.030	.260	<.010	<.010	7.3	6.4	<10	--	280
APR									
29...	<.030	.020	.030	<.010	7.8	7.6	<10	--	280
29...	--	--	--	--	--	--	--	--	--
MAY									
02-02	.240	.460	1.20	.080	11	13	260	--	2000
06-06	<.030	.100	.070	.010	5.7	6.6	<10	<10	K1500
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
07-07	.160	.160	.110	.030	7.6	7.4	10	<10	K1500
07...	--	--	--	--	--	--	--	--	--
16-16	.040	.320	.190	.020	6.5	5.0	20	<10	3900
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
23-23	.030	2.20	.170	.040	7.8	6.6	20	<10	3200
23...	--	--	--	--	--	--	--	--	--
JUN									
03-03	<.030	--	.210	.020	7.3	7.1	30	--	3700
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	<.030	.020	.020	.010	9.0	9.1	<10	--	270
24...	--	--	--	--	--	--	--	--	--
JUL									
01...	--	--	--	--	--	--	--	--	--
01-02	<.030	.120	.140	.020	5.1	5.4	30	<10	K8700
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
13-13	.050	.170	.130	.030	4.7	3.3	16	<10	K8000

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
JUL , 1981										
13...	--	0348	153	--	--	--	--	--	--	--
13...	--	0458	194	15.5	--	--	--	--	--	--
13...	--	0510	164	16.5	303	7.7	6.2	--	--	--
13...	--	0845	121	--	--	--	--	--	--	--
13...	--	0855	120	15.5	383	7.6	7.6	--	--	--
16-18	--	--	--	--	--	--	--	--	--	--
18...	--	2005	--	--	--	--	--	406	--	--
18-18	19.0	2005	--	--	--	--	--	--	--	--
18...	--	2010	--	--	--	--	--	398	--	--
18...	--	2015	--	--	--	--	--	376	--	--
18...	--	2020	--	--	--	--	--	375	--	--
18...	--	2105	--	--	--	--	--	321	--	--
18...	--	2125	--	--	--	--	--	284	--	--
18...	--	2210	--	--	--	--	--	286	--	--
18...	--	2255	--	--	--	--	--	332	--	--
23-23	20.0	1910	--	--	--	--	--	248	8.3	2200
23...	--	1953	840	--	--	--	--	--	--	--
23...	--	2002	838	--	--	--	--	--	--	--
23...	--	2017	678	--	--	--	--	--	--	--
23...	--	2025	593	12.0	165	8.3	7.5	--	--	--
23...	--	2046	352	--	--	--	--	--	--	--
23...	--	2051	309	11.5	193	8.3	7.7	--	--	--
23...	--	2118	213	--	--	--	--	--	--	--
23...	--	2126	191	11.0	235	8.1	8.0	--	--	--
25-25	21.0	155	--	--	--	--	--	364	8.0	1020
25...	--	0917	531	16.5	224	7.7	6.5	--	--	--
OCT										
05-05	22.0	--	--	--	--	--	--	--	--	--
05...	--	0510	34	--	--	--	--	--	--	--
05...	--	0525	34	11.5	476	7.5	7.7	--	--	--
05...	--	0655	34	11.0	422	7.6	7.8	--	--	--
05...	--	0710	33	--	--	--	--	--	--	--
05...	--	0910	24	--	--	--	--	--	--	--
DEC										
10...	--	1025	23	3.0	563	7.9	10.2	589	8.3	--
20...	--	--	--	--	--	--	--	699	7.9	--
20...	--	1410	32	--	--	--	--	--	--	--
20-20	23.0	1410	--	--	--	--	--	691	8.2	494
20...	--	1645	48	--	--	--	--	--	--	--
20...	--	1750	43	--	--	--	--	--	--	--

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)
JUL , 1981									
13...	--	--	--	173	59	50	50	--	--
13...	--	--	--	287	81	61	51	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	48	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
16-18	--	--	--	--	--	--	--	--	--
18...	114	13	38	--	--	--	--	--	27
18-18	--	--	--	--	--	--	--	--	--
18...	244	24	60	--	--	--	--	--	33
18...	402	36	95	--	--	--	--	--	40
18...	470	42	100	--	--	--	--	--	48
18...	534	60	210	--	--	--	--	--	92
18...	553	61	240	--	--	--	--	--	92
18...	580	64	300	--	--	--	--	--	87
18...	394	44	220	--	--	--	--	--	58
23-23	1800	175	700	--	--	--	--	--	170
23...	--	--	--	3600	58	45	42	--	--
23...	--	--	--	3340	72	51	47	--	--
23...	--	--	--	3010	70	55	52	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	1950	91	82	73	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	1700	88	76	75	--	--
23...	--	--	--	--	--	--	--	--	--
25-25	738	80	320	--	--	--	--	--	64
25...	--	--	--	--	--	--	--	--	--
OCT									
05-05	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
DEC									
10...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	13	--	--	--	--	--
20-20	38	6	28	--	--	--	--	22	--
20...	--	--	--	49	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	CALCIUM DIS-SOLVED (MG/L AS CA)
JUL , 1981									
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
16-18	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	.120	--	--
18-18	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	.230	--	--
18...	--	--	--	--	--	--	.320	--	--
18...	--	--	--	--	--	--	.370	--	--
18...	--	--	--	--	--	--	.520	--	--
18...	--	--	--	--	--	--	.530	--	--
18...	--	--	--	--	--	--	.550	--	--
18...	--	--	--	--	--	--	.350	--	--
23-23	4.4	--	--	.210	--	.480	1.59	.090	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
25-25	2.5	--	--	.040	--	.260	.620	.040	--
25...	--	--	--	--	--	--	--	--	--
OCT									
05-05	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
0[illegible].	--	--	--	--	--	--	--	--	--
0[illegible].	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
DEC									
10...	.31	.27	.100	.070	.280	.280	.010	--	78
20...	--	--	--	--	--	--	--	--	70
20...	--	--	--	--	--	--	--	--	--
20-20	.20	--	--	<.030	--	--	.050	.010	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)
JUL , 1981									
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
16-18	--	--	--	--	--	--	--	<0	--
18...	--	--	--	--	--	--	--	--	--
18-18	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
23-23	--	6.1	--	--	--	5.0	230	<10	51000
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
25-25	--	5.1	--	--	--	4.2	64	<10	20000
25...	--	--	--	--	--	--	--	--	--
OCT									
05-05	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
DEC									
10...	28	--	7.6	3.6	130	11	--	--	--
20...	24	--	23	3.3	120	34	--	--	--
20...	--	--	--	--	--	--	--	--	--
20-20	--	27	--	--	--	41	32	--	K40
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
MAR , 1982												
07...	--	1050	23	1.5	587	7.7	--	--	--	--	--	4
07...	--	1350	25	3.0	598	7.4	--	--	--	--	--	7
07...	--	1645	25	3.0	590	7.8	--	--	--	--	--	11
07...	--	2000	25	3.5	683	7.9	--	--	--	--	--	17
07...	--	2335	24	2.5	818	--	--	--	--	--	532	29
08...	--	0140	24	--	--	--	--	860	8.2	--	--	19
08...	--	0340	23	--	--	--	--	764	8.2	--	--	15
08...	--	0540	23	--	--	--	--	690	8.2	--	450	11
08...	--	0740	23	--	--	--	--	644	8.2	--	--	10
08...	--	0940	23	--	--	--	--	629	8.2	--	--	7
09-10	25.0	--	--	--	--	--	--	--	--	--	--	--
09...	--	0940	21	1.0	569	7.7	13.0	--	--	--	--	8
09...	--	1315	25	4.0	586	7.9	12.5	--	--	--	--	21
09...	--	1620	69	4.5	774	7.7	10.5	828	--	--	--	453
09...	--	1910	54	4.0	666	7.7	10.5	701	--	--	832	365
09...	--	2325	37	--	--	--	--	747	--	--	--	222
10...	--	0125	32	--	--	--	--	743	--	--	--	124
10...	--	0325	30	--	--	--	--	720	--	--	568	72
10...	--	0525	30	--	--	--	--	681	--	--	--	43
10...	--	0725	29	--	--	--	--	639	--	--	--	25
10...	--	0925	29	--	--	--	--	621	--	--	--	17
APR												
28...	--	1000	21	--	--	--	--	--	--	--	--	--
28...	--	1010	21	9.5	646	7.7	11.8	648	8.2	--	444	7
28...	--	1015	21	--	--	--	--	--	--	--	--	--
MAY												
10-10	26.0	600	--	--	--	--	--	395	7.6	--	--	639
10...	--	0600	70	--	--	--	--	486	8.1	296	461	145
10...	--	0640	147	--	--	--	--	--	--	--	--	--
10...	--	0645	152	--	--	--	--	462	7.9	279	819	512
10...	--	0655	166	12.5	446	7.6	8.7	--	--	--	--	--
10...	--	0730	218	--	--	--	--	346	7.5	215	1200	856
10...	--	0830	253	--	--	--	--	241	7.6	183	1150	850
10...	--	0855	227	--	--	--	--	--	--	--	--	--
10...	--	0930	159	--	--	--	--	316	7.6	201	910	564
10...	--	1030	116	--	--	--	--	371	7.7	225	724	384
10...	--	1130	90	--	--	--	--	373	7.9	273	588	272
10...	--	1210	80	--	--	--	--	--	--	--	--	--
10...	--	1230	76	--	--	--	--	472	7.9	295	559	240
10...	--	1255	74	--	--	--	--	483	7.9	311	581	188

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
MAR , 1962											
07...	<4	2.9	--	--	--	--	--	--	--	--	--
07...	<4	3.7	--	--	--	--	--	--	--	--	--
07...	<4	7.4	--	--	--	--	--	--	--	--	--
07...	4	15	--	--	--	--	--	--	--	--	--
07...	7	23	--	--	--	--	--	--	--	--	--
08...	<4	19	--	--	--	--	--	--	--	--	--
08...	<4	12	--	--	--	--	--	--	--	--	--
08...	<4	12	--	--	--	--	--	--	--	--	--
08...	<4	12	--	--	--	--	--	--	--	--	--
08...	<4	5.4	--	--	--	--	--	--	--	--	--
09-10	--	--	--	--	--	--	--	--	--	--	--
09...	<4	5.3	--	--	--	--	--	--	--	--	--
09...	<4	5.0	--	--	--	--	--	--	--	--	--
09...	55	260	--	--	--	--	--	--	--	--	--
09...	40	240	--	--	--	--	--	--	--	--	--
09...	33	160	--	--	--	--	--	--	--	--	--
10...	17	75	--	--	--	--	--	--	--	--	--
10...	13	40	--	--	--	--	--	--	--	--	--
10...	6	26	--	--	--	--	--	--	--	--	--
10...	4	15	--	--	--	--	--	--	--	--	--
10...	<4	10	--	--	--	--	--	--	--	--	--
APR											
28...	--	--	--	--	--	--	--	--	--	--	--
28...	<4	3.4	--	--	--	--	<5	--	<.05	--	--
28...	--	--	4	--	--	--	--	--	--	--	--
MAY											
10-10	69	250	--	--	--	--	--	110	--	--	--
10...	--	--	--	--	--	--	--	--	1.7	.48	.120
10...	--	--	604	65	44	32	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	2.7	.64	.190
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	4.6	1.4	.400
10...	--	--	--	--	--	--	--	--	4.4	.73	.270
10...	--	--	892	72	53	42	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	3.3	.84	.300
10...	--	--	--	--	--	--	--	--	2.5	.76	.280
10...	--	--	--	--	--	--	--	--	2.5	.83	.210
10...	--	--	245	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	2.6	.68	.230
10...	--	--	--	--	--	--	--	--	2.6	.66	.220

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)
MAR , 1982											
07...	--	--	--	--	--	--	--	10	12	--	--
07...	--	--	--	--	--	--	--	10	10	--	--
07...	--	--	--	--	--	--	--	12	13	--	--
07...	--	--	--	--	--	--	--	32	45	--	--
07...	--	--	--	--	--	--	--	59	92	--	--
08...	--	--	--	--	--	--	--	60	89	--	--
08...	--	--	--	--	--	--	--	39	57	--	--
08...	--	--	--	--	--	--	--	28	34	--	--
08...	--	--	--	--	--	--	--	18	25	--	--
08...	--	--	--	--	--	--	--	15	20	--	--
09-10	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	9.6	10	--	--
09...	--	--	--	--	--	--	--	10	10	--	--
09...	--	--	--	--	--	--	--	72	100	--	--
09...	--	--	--	--	--	--	--	39	55	--	--
09...	--	--	--	--	--	--	--	39	57	--	--
10...	--	--	--	--	--	--	--	31	42	--	--
10...	--	--	--	--	--	--	--	20	28	--	--
10...	--	--	--	--	--	--	--	16	19	--	--
10...	--	--	--	--	--	--	--	12	14	--	--
10...	--	--	--	--	--	--	--	11	12	--	--
APR											
28...	--	--	--	--	--	--	--	--	--	--	--
28...	<.030	--	.100	.020	--	--	9.1	--	8.8	<10	--
26...	--	--	--	--	--	--	--	--	--	--	--
MAY											
10-10	--	--	--	--	--	--	11	--	11	--	K2000
10...	.070	<.100	<.100	.160	<.010	.03	--	--	--	38	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	.120	<.100	.100	.340	<.010	.03	--	--	--	98	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	.230	.490	.520	.580	.040	.09	--	--	--	320	--
10...	.190	.350	.370	.550	<.010	.06	--	--	--	240	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	.150	.290	.330	.480	<.010	.06	--	--	--	170	--
10...	.180	.280	.310	.330	.050	.09	--	--	--	100	--
10...	.180	.410	.420	.240	.060	.06	--	--	--	56	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	.100	.460	.480	.260	.060	.06	--	--	--	51	--
10...	.120	.490	.510	.200	.060	.03	--	--	--	14	--

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
MAY , 1982										
13-14	27.0	--	--	--	--	--	--	--	--	--
13...	--	0935	112	10.0	343	7.7	8.5	--	--	--
17-17	28.0	1635	--	--	--	--	--	--	--	--
19-20	29.0	2100	--	--	--	--	--	495	7.9	664
19...	--	2115	194	--	--	--	--	560	--	--
19...	--	2120	217	16.0	531	7.7	7.6	--	--	--
19...	--	2345	147	--	--	--	--	450	--	--
20...	--	0810	153	--	--	--	--	--	--	--
20...	--	0815	153	12.5	470	7.5	7.8	--	--	--
20...	--	1600	84	--	--	--	--	--	--	--
20...	--	1605	84	13.0	588	7.7	7.8	--	--	--
28-28	30.0	--	--	--	--	--	--	--	--	--
JUN										
15-15	31.0	230	--	--	--	--	--	506	7.9	487
15...	--	0820	65	15.5	494	7.4	--	--	--	--
16-17	32.0	--	--	--	--	--	--	--	--	--
16...	--	1540	90	--	--	--	--	--	--	--
16-16	--	1540	--	--	--	--	--	458	8.1	866
16...	--	1710	83	20.0	516	7.8	7.4	--	--	--
16...	--	1740	90	--	--	--	--	535	--	--
16...	--	1920	288	--	--	--	--	--	--	--
23...	--	1150	--	--	--	--	--	574	8.3	406
23...	--	1155	44	--	--	--	--	--	--	--
23...	--	1200	44	21.5	546	8.1	12.1	--	--	--
JUL										
08-08	33.0	1540	--	--	--	--	--	417	8.2	360

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)
MAY , 1982									
13-14	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
17-17	--	--	--	--	--	--	--	--	--
19-20	314	32	140	--	--	--	--	--	52
19...	--	--	--	997	69	43	34	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	536	88	69	56	--	--
20...	--	--	--	170	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	129	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
28-28	--	--	--	--	--	--	--	--	--
JUN									
15-15	166	20	80	--	--	--	--	26	--
15...	--	--	--	--	--	--	--	--	--
16-17	--	--	--	--	--	--	--	--	--
16...	--	--	--	36	--	--	--	--	--
16-16	548	60	250	--	--	--	--	--	65
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	93	--	--	--	--	--
16...	--	--	--	745	71	50	43	--	--
23...	7	<4	2.4	--	--	--	--	6	--
23...	--	--	--	11	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
JUL									
08-08	103	13	28	--	--	--	--	25	--

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
MAY , 1982									
13-14	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
17-17	--	--	--	--	--	--	--	--	--
19-20	.89	.050	.570	.320	.030	10	10	56	K13000
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
28-28	--	--	--	--	--	--	--	--	--
JUN									
15-15	.59	.050	.160	.150	.010	10	8.6	36	K2500
15...	--	--	--	--	--	--	--	--	--
16-17	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16-16	1.1	.030	.170	.470	.010	8.4	7.3	98	K6000
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
23...	.10	.030	.060	.020	.010	6.5	7.8	<10	K120
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
JUL									
08-08	.45	.050	.060	.110	.020	5.1	3.5	31	K6300

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
MAY , 1980										
21...	--	0945	E.02	18.5	2600	6.7	5.7	2270	7.8	--
21...	--	0950	E.02	--	--	--	--	--	--	--
JUN										
03...	--	1540	E.05	24.0	2280	6.6	3.6	--	7.4	--
03...	--	1545	E.05	--	--	--	--	--	--	--
14...	--	1810	174	18.0	317	7.4	6.6	--	--	--
14-14	1.0	1810	--	--	--	--	--	--	8.0	--
14...	--	1835	77	18.0	288	7.3	7.2	--	--	--
18...	--	2015	25	20.0	866	7.5	6.3	--	--	--
18...	--	2030	23	20.0	305	7.1	6.7	--	--	--
JUL										
09...	--	0850	E.02	19.5	2300	6.6	5.8	2300	7.7	--
09...	--	0855	E.02	--	--	--	--	--	--	--
09...	--	1220	--	--	--	--	--	--	--	--
12...	--	1815	52	25.0	710	7.3	6.1	--	--	--
12-12	3.0	1815	--	--	--	--	--	449	7.8	--
12...	--	1820	--	--	--	--	--	--	--	--
12...	--	1850	72	25.0	256	7.5	6.5	--	--	--
20-20	4.0	850	--	--	--	--	--	234	8.0	--
20...	--	0850	30	19.0	221	7.0	6.9	--	--	--
20...	--	0855	23	--	--	--	--	--	--	--
20...	--	0900	15	19.0	--	--	--	--	--	--
20...	--	0920	10	18.5	246	7.3	7.0	--	--	--
25...	--	1910	4.4	20.0	404	6.7	6.5	--	--	--
25-25	5.0	1910	--	--	--	--	--	289	8.0	--
25...	--	1915	20	--	--	--	--	--	--	--
25...	--	1930	33	19.5	--	--	6.8	--	--	--
25...	--	2015	14	19.0	217	7.0	7.2	--	--	--
25...	--	2020	12	--	--	--	--	--	--	--
AUG										
20...	--	--	--	--	--	--	--	--	--	--
20-20	6.0	820	--	--	--	--	--	310	7.3	230
20...	--	0820	2.3	17.0	138	7.7	8.3	--	--	--
20...	--	0830	20	--	--	--	--	--	--	--
20...	--	0835	25	16.0	280	7.3	8.4	--	--	--
20...	--	1005	3.5	16.5	216	7.4	7.9	--	--	--
SEP										
29...	--	1225	E.01	16.0	2610	6.6	2.1	2780	7.3	--
OCT										
15-15	7.0	410	--	--	--	--	--	170	8.3	125

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)
MAY , 1980										
21...	2420	15	--	13	--	--	--	--	20	--
21...	--	--	--	--	188	--	--	--	--	--
JUN										
03...	2080	28	<4	2.8	--	--	--	--	--	--
03...	--	--	--	--	302	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14-14	10500	10700	798	3300	--	--	--	--	--	340
14...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	2420	62	49	41	--	--
18...	--	--	--	--	925	--	--	--	--	--
JUL										
09...	2140	18	5	7.2	--	--	--	--	27	--
09...	--	--	--	--	43	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	11400	71	46	42	--	--
12-12	6240	6120	462	1600	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	5090	81	58	57	--	--
20-20	2040	1770	185	550	--	--	--	--	--	130
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	2320	80	67	62	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	1230	85	70	64	--	--
25...	--	--	--	--	--	--	--	--	--	--
25-25	810	645	108	260	--	--	--	--	--	130
25...	--	--	--	--	2970	74	59	52	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	941	85	79	70	--	--
AUG										
20...	--	--	--	--	--	--	--	--	--	--
20-20	3860	3700	330	800	--	--	--	--	--	170
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	1320	88	80	76	--	--
20...	--	--	--	--	4300	70	50	44	--	--
20...	--	--	--	--	516	--	83	76	--	--
SEP										
29...	2440	9	5	9.8	--	--	--	--	16	--
OCT										
15-15	1350	1120	100	400	--	--	--	--	--	92

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	OXYGEN DEMAND, BIOCHEM ULT. CARBONACEOUS (MG/L)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L)	CARBON, ORGANIC TOTAL (MG/L AS C)
MAY , 1980										
21...	--	--	--	--	.700	--	--	--	--	12
21...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	.920	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14-14	--	--	--	--	--	.640	6.42	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	43
JUL										
09...	3.0	--	1.3	1.2	.550	.270	.030	<.010	--	15
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	<1	--
12...	--	--	--	--	--	--	--	--	--	140
12-12	34	62	9.4	2.3	1.00	.810	2.86	.230	--	--
12...	--	--	--	--	--	--	--	--	6	--
12...	--	--	--	--	--	--	--	--	--	--
20-20	12	23	2.7	.75	.090	.460	1.15	.120	--	--
20...	--	--	--	--	--	--	--	--	11	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	2.4	1.1	--	--	--	--	--	37
20...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25-25	13	28	3.1	.80	.090	.780	.490	.050	--	--
25...	--	--	--	--	--	--	--	--	6	--
25...	--	--	1.1	.59	--	--	--	--	--	72
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
AUG										
20...	--	--	11	--	--	--	--	--	--	36
20-20	18	--	3.9	1.2	.590	.350	1.76	.030	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
SEP										
29...	1.0	--	.92	.88	.600	.240	.020	.010	<1	14
OCT										
15-15	12	21	2.2	1.6	.400	.620	.720	.120	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
MAY , 1980									
21...	--	--	--	--	--	--	64	--	--
21...	--	--	--	--	--	--	--	--	--
JUN									
03...	210	140	100	13	268	--	64	<10	K1000000
03...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14-14	820	82	12	39	56	120	7.0	2000	27000
14...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
JUL									
09...	280	140	110	14	219	1000	65	<10	K6700
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12-12	300	42	14	18	66	160	8.8	460	K200000
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
20-20	90	13	6.2	8.0	65	55	2.9	210	K94000
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25-25	87	12	7.8	6.5	60	56	6.6	230	47000
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
AUG									
20...	--	--	--	--	--	--	--	--	--
20-20	160	30	9.3	14	90	84	7.2	280	K94000
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
SEP									
29...	350	130	130	12	256	1400	110	<10	--
OCT									
15-15	62	8.3	3.0	9.3	54	49	3.6	130	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
OCT , 1980										
15...	--	0410	63	9.0	135	7.9	8.4	--	--	--
15...	--	0415	70	--	--	--	--	--	--	--
15...	--	0735	57	7.5	143	7.7	9.0	--	--	--
15...	--	0736	57	--	--	--	--	--	--	--
15...	--	1044	30	--	--	--	--	--	--	--
15...	--	1045	30	3.0	176	7.5	9.8	--	--	--
FEB , 1981										
18...	--	1325	E.03	4.0	2620	7.8	7.0	2450	7.4	2380
APR										
03...	8.0	0820	E.10	6.5	--	--	--	1120	7.5	825
03...	--	0825	.11	6.5	1140	7.0	--	--	--	--
21-21	9.0	1600	--	--	--	--	--	--	--	--
21...	--	1603	.90	--	--	--	--	--	--	--
21...	--	1610	1.6	--	--	--	--	--	--	--
21...	--	1623	2.4	--	--	--	--	--	--	--
21...	--	1626	2.7	13.5	1100	--	--	--	--	--
21...	--	1630	2.9	--	--	--	--	--	--	--
21...	--	1644	23	--	--	--	--	--	--	--
21...	--	1700	24	--	--	--	--	--	--	--
21...	--	1704	22	14.5	596	--	--	--	--	--
21...	--	1714	17	14.5	631	7.6	7.3	--	--	--
21...	--	1735	8.2	--	266	--	--	--	--	--
21...	--	1740	6.9	14.0	270	--	--	--	--	--
21...	--	1745	5.2	12.0	287	--	--	--	--	--
29...	--	1620	.01	18.5	2630	7.0	12.2	2680	7.9	2420
MAY										
02...	10.0	--	--	--	--	--	--	--	--	--
02...	--	1730	11	--	--	--	--	--	7.7	--
02...	--	1740	42	--	--	--	--	1010	7.7	--
02...	--	1755	29	--	--	--	--	702	7.3	--
02...	--	1810	14	--	--	--	--	668	7.7	--
02...	--	1855	11	--	--	--	--	639	7.7	--
02...	--	1905	29	--	--	--	--	642	7.7	--
02...	--	1920	35	--	--	--	--	459	7.8	--
02...	--	1935	25	--	--	--	--	417	7.8	--
02...	--	1950	16	--	--	--	--	424	7.8	--
06...	--	1440	9.3	--	--	--	--	--	--	--
06...	--	1443	9.3	14.0	283	7.6	8.5	--	--	--
06...	--	1720	23	11.5	350	7.5	8.5	--	--	--
06...	--	2040	1.5	10.5	449	7.5	9.6	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)
OCT , 1980										
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	3300	59	40	31	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	1790	76	54	42	--	--
15...	--	--	--	--	1110	80	78	75	--	--
15...	--	--	--	--	--	--	--	--	--	--
FEB , 1981										
18...	2490	7	<4	8.1	--	--	--	--	21	--
APR										
03...	1120	147	38	250	--	--	--	--	--	280
03...	--	--	--	--	243	95	91	81	--	--
21-21	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	3360	90	67	43	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	315	84	51	37	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	11500	84	53	41	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	5100	92	70	57	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
29...	2510	20	5	12	117	--	--	--	--	32
MAY										
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	17700	13300	1120	4900	--	--	--	--	--	1200
02...	9580	8360	725	3400	--	--	--	--	--	720
02...	5850	5200	480	2400	--	--	--	--	--	590
02...	2480	1920	200	1100	--	--	--	--	--	370
02...	5740	4710	400	1800	--	--	--	--	--	440
02...	5650	4860	385	2000	--	--	--	--	--	370
02...	4260	3680	320	1500	--	--	--	--	--	220
02...	3050	2620	245	1200	--	--	--	--	--	220
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	OXYGEN DEMAND, BIOCHEM ULT. CARBONACEOUS (MG/L)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT , 1980										
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	<1	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
FEB , 1981										
18...	1.0	4.0	.87	.80	.580	1.10	.020	<.010	<1	40
APR										
03...	42	80	2.6	2.2	.540	1.34	.350	.040	6	63
03...	--	--	--	--	--	--	--	--	--	--
21-21	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	8	72
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	61
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	4	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
29...	2.0	3.0	1.0	.81	.280	.180	.070	<.010	1	--
MAY										
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	2.6	--	.770	.930	3.55	.110	--	--
02...	--	--	1.7	--	.780	1.25	5.58	.170	--	--
02...	--	--	10	--	.830	2.00	4.03	.220	--	--
02...	--	--	5.5	--	.800	1.33	1.26	.240	--	--
02...	--	--	11	--	.760	1.60	--	.240	--	--
02...	--	--	11	--	.500	.780	--	.170	--	--
02...	--	--	6.6	--	.460	.700	.540	.250	--	--
02...	--	--	7.2	--	.440	.630	1.45	.150	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
OCT , 1980									
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
FEB , 1981									
18...	300	130	170	11	217	1300	130	<10	K1900
APR									
03...	140	37	80	8.1	121	340	65	560	K400
03...	--	--	--	--	--	--	--	--	--
21-21	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
29...	230	140	140	14	266	1300	82	<10	5500
MAY									
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	920	98	46	59	125	400	32	2400	--
02...	620	56	32	34	142	240	29	1700	--
02...	460	40	33	26	121	230	32	1200	--
02...	220	24	32	16	133	190	40	560	--
02...	330	36	34	26	140	150	38	880	--
02...	240	28	23	24	111	92	23	680	--
02...	180	24	20	20	100	81	20	500	--
02...	150	20	21	17	98	85	18	440	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
MAY , 1981										
07...	12.0	--	--	--	--	--	--	--	--	--
07-07	--	850	--	--	--	--	--	275	8.2	224
07...	--	0030	3.1	10.0	370	7.5	9.9	--	--	--
12-13	13.0	2330	--	--	--	--	--	308	8.1	212
16-17	14.0	2115	--	--	--	--	--	270	8.0	279
17...	--	0840	61	--	--	--	--	--	--	--
17...	--	0850	61	--	--	--	--	--	--	--
17...	--	0910	69	9.5	210	8.2	--	--	--	--
17...	--	0922	76	--	--	--	--	--	--	--
17...	--	1025	71	--	--	--	--	--	--	--
17...	--	1035	69	9.5	210	8.2	--	--	--	--
17...	--	1110	58	--	--	--	--	--	--	--
17...	--	1200	62	--	--	--	--	--	--	--
17...	--	1205	61	10.0	225	8.2	--	--	--	--
17...	--	1350	47	--	--	--	--	--	--	--
17...	--	1400	46	--	--	--	--	--	--	--
17...	--	1405	46	--	--	--	--	--	--	--
17...	--	1408	46	10.0	268	8.0	--	--	--	--
17...	--	1820	37	10.0	--	--	--	--	--	--
17...	--	1826	34	10.0	290	7.9	--	--	--	--
17...	--	1835	35	--	--	--	--	--	--	--
17...	--	2120	22	8.5	--	--	--	--	--	--
17...	--	2128	20	8.5	350	7.8	--	--	--	--
18...	--	0920	.76	10.5	1200	7.6	--	--	--	--
22-23	15.0	2120	--	--	--	--	--	316	7.8	242
23...	--	0845	8.0	12.0	--	--	--	--	--	--
23...	--	0846	6.7	12.0	314	7.5	8.9	--	--	--
23...	--	1045	3.2	12.0	461	7.4	8.8	--	--	--
JUN										
03-03	16.0	1930	--	--	--	--	--	368	8.2	455
03...	--	1950	79	--	--	--	--	--	--	--
03...	--	2000	65	--	--	--	--	--	--	--
03...	--	2015	25	20.5	--	--	--	--	--	--
03...	--	2021	17	20.5	302	7.7	5.8	--	--	--
08...	--	2340	12	--	890	--	--	--	--	--
09...	--	0010	29	--	254	--	--	--	--	--
09...	--	0040	18	--	198	--	--	--	--	--
09...	--	0110	29	--	193	--	--	--	--	--
09...	--	0140	29	--	172	--	--	--	--	--
09...	--	0210	18	--	188	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)
MAY , 1981										
07...	--	--	--	--	--	--	--	--	--	--
07-07	2440	1940	185	900	--	--	--	--	150	9.0
07...	--	--	--	--	--	--	--	--	--	--
12-13	1180	812	90	390	--	--	--	--	130	16
16-17	1990	1480	122	550	--	--	--	--	110	5.0
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	3580	49	35	28	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	4610	68	48	38	--	--
17...	--	--	--	--	2950	70	50	37	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	1970	76	54	45	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	1870	70	55	46	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	1620	70	47	37	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	1210	67	47	41	--	--
17...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
22-23	1280	992	100	350	--	--	--	--	160	10
23...	--	--	--	--	203	87	79	72	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
JUN										
03-03	4940	4220	360	1500	--	--	--	--	350	34
03...	--	--	--	--	7820	46	31	20	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	4580	83	55	41	--	--
03...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	OXYGEN DEMAND, BIOCHEM ULT. CARBON-ACEOUS (MG/L)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	OIL AND GREASE, TOTAL RECOV. GRAVI-METRIC (MG/L)	CARBON, ORGANIC TOTAL (MG/L AS C)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)
MAY , 1981										
07...	--	--	--	--	--	--	--	--	--	--
07-07	19	3.7	.19	.070	.320	.160	.070	--	--	130
07...	--	--	--	--	--	--	--	--	--	--
12-13	27	--	.40	.170	.430	.530	.060	--	--	61
16-17	9.0	3.0	1.3	.150	.410	1.04	.070	--	--	64
17...	--	--	--	--	--	--	--	4	6.5	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	9.3	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	4	--	--
17...	--	--	--	--	--	--	--	--	23	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	24	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
22-23	18	2.0	.21	<.030	.620	.770	.050	--	--	82
23...	--	1.2	--	--	--	--	--	--	14	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
JUN										
03-03	61	7.6	1.0	.210	--	3.30	.060	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	2	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML)
MAY , 1981									
07...	--	--	--	--	--	--	--	--	--
07-07	16	14	14	91	36	14	320	<10	K9600
07...	--	--	--	--	--	--	--	--	--
12-13	12	14	9.0	69	52	11	80	<10	K9100
16-17	13	7.6	12	67	39	6.1	80	<10	K10000
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
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17...	--	--	--	--	--	--	--	--	--
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17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
22-23	13	10	8.7	78	63	9.9	90	<10	K16000
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
JUN									
03-03	--	12	18	93	85	7.5	--	--	K15000
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
JUN , 1981											
09...	--	0240	14	--	209	--	--	--	--	--	--
09...	--	0310	13	--	214	--	--	--	--	--	--
09...	--	0340	13	--	205	--	--	--	--	--	--
09...	--	0410	12	--	212	--	--	--	--	--	--
09...	--	0555	12	--	252	--	--	--	--	--	--
09...	--	0750	11	--	252	--	--	--	--	--	--
09...	--	0815	29	--	202	--	--	--	--	--	--
09...	--	0845	20	--	166	--	--	--	--	--	--
09...	--	0915	12	--	208	--	--	--	--	--	--
24...	--	1300	.01	18.5	--	--	--	2530	7.2	2270	2300
24...	--	1304	.00	18.5	239	6.6	2.2	--	--	--	--
JUL											
01-02	17.0	2240	--	--	--	--	--	325	8.0	282	3080
01...	--	2325	57	--	--	--	--	--	--	--	--
02...	--	0020	8.7	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13-13	18.0	250	--	--	--	--	--	346	7.8	312	2090
13...	--	0250	16	--	--	--	--	861	7.1	675	--
13...	--	0300	23	--	--	--	--	574	6.7	442	--
13...	--	0305	33	--	--	--	--	452	6.6	339	--
13...	--	0310	48	--	--	--	--	368	7.0	260	--
13...	--	0340	36	--	--	--	--	247	6.9	162	--
13...	--	0357	22	20.5	--	--	--	--	--	--	--
13...	--	0400	21	--	--	--	--	255	7.0	164	--
13...	--	0405	18	--	--	--	--	--	--	--	--
13...	--	0410	15	20.5	233	7.5	6.5	--	--	--	--
13...	--	0430	12	--	--	--	--	269	7.1	174	--
13...	--	0518	4.9	--	--	--	--	--	--	--	--
13...	--	0520	46	--	--	--	--	--	--	--	--
16-18	--	--	--	--	--	--	--	--	--	--	--
18...	--	1905	10	--	--	--	--	--	--	--	--
18-18	19.0	1905	--	--	--	--	--	--	--	--	--
18...	--	1910	12	--	--	--	--	162	--	--	--
18...	--	1915	47	--	--	--	--	361	--	--	--
18...	--	1930	132	--	--	--	--	264	--	--	--
18...	--	1945	117	--	--	--	--	241	--	--	--
18...	--	1955	74	--	--	--	--	254	--	--	--
18...	--	2020	45	--	--	--	--	257	--	--	--
18...	--	2040	25	--	--	--	--	281	--	--	--
18...	--	2105	13	--	--	--	--	310	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-TCAL (HIGH LEVEL) (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	OXYGEN DEMAND, BIOCHEM ULT. CARBON-ACEOUS (MG/L)
JUN , 1981											
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
24...	10	4	4.9	50	87	--	--	22	--	<1.0	2.0
24...	--	--	--	--	--	--	--	--	--	--	--
JUL											
01-02	2780	235	900	--	--	--	--	--	230	27	42
01...	--	--	--	3520	78	58	47	--	--	--	--
02...	--	--	--	905	84	76	67	--	--	--	--
13...	--	--	--	--	--	--	72	--	--	--	--
13-13	1680	162	550	--	--	--	--	--	180	36	54
13...	876	--	--	--	--	--	--	--	--	--	--
13...	1300	--	--	--	--	--	--	--	--	--	--
13...	2020	--	--	--	--	--	--	--	--	--	--
13...	2410	--	--	--	--	--	--	--	--	--	--
13...	1270	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	1410	83	67	57	--	--	--	--
13...	920	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	460	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	391	86	80	72	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
16-18	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18-18	--	--	--	--	--	--	--	--	--	--	--
18...	4620	340	1300	--	--	--	--	--	320	--	--
18...	7780	580	2300	--	--	--	--	--	390	--	--
18...	7630	620	2200	--	--	--	--	--	450	--	--
18...	5030	410	1900	--	--	--	--	--	320	--	--
18...	3890	330	1400	--	--	--	--	--	240	--	--
18...	2410	200	1000	--	--	--	--	--	150	--	--
18...	1830	148	850	--	--	--	--	--	110	--	--
18...	1350	120	700	--	--	--	--	--	99	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L)	CARBON, ORGANIC TOTAL (MG/L AS C)
JUN , 1981											
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
24...	1.4	1.3	--	.800	--	.530	.040	.020	--	<1	7.4
24...	--	--	--	--	--	--	--	--	--	--	--
JUL											
01-02	6.8	1.4	--	.480	--	.600	2.11	.160	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13-13	3.7	.87	--	.190	--	.840	1.42	.090	--	--	--
13...	6.7	1.7	.360	.290	1.90	1.80	.780	.060	.00	--	--
13...	8.2	1.9	.150	.280	2.00	2.00	.390	.060	.00	--	--
13...	2.5	1.9	.150	.260	1.50	1.40	.590	.070	.03	--	--
13...	7.4	1.3	.140	.220	1.10	1.10	1.10	.100	.06	--	--
13...	3.3	1.1	.200	.160	.620	.600	.770	.100	.12	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	1.7	1.2	.160	.140	.560	.600	.610	.090	.09	--	--
13...	--	--	--	--	--	--	--	--	--	1	26
13...	--	--	--	--	--	--	--	--	--	--	--
13...	2.0	.92	.150	--	.620	--	.470	.080	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
16-18	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18-18	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	3.20	--	--	--	--
18...	--	--	--	--	--	--	4.34	--	--	--	--
18...	--	--	--	--	--	--	5.50	--	--	--	--
18...	--	--	--	--	--	--	7.55	--	--	--	--
18...	--	--	--	--	--	--	3.26	--	--	--	--
18...	--	--	--	--	--	--	1.96	--	--	--	--
18...	--	--	--	--	--	--	1.59	--	--	--	--
18...	--	--	--	--	--	--	1.11	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
JUN , 1981										
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
24...	--	--	120	13	221	1300	68	--	--	2800
24...	--	--	--	--	--	--	--	--	--	--
JUL										
01-02	--	--	8.2	15	82	69	6.2	--	<10	41000
01...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13-13	120	19	9.1	13	66	77	6.0	160	<10	58000
13...	--	--	--	--	--	--	--	170	5	--
13...	--	--	--	--	--	--	--	230	2	--
13...	--	--	--	--	--	--	--	290	2	--
13...	--	--	--	--	--	--	--	320	3	--
13...	--	--	--	--	--	--	--	190	1	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	130	2	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	65	1	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
16-18	--	--	--	--	--	--	--	--	<0	--
18...	--	--	--	--	--	--	--	--	--	--
18-18	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	OXYGEN, DISSOLVED (MG/L)	SPECIFIC CONDUCTANCE LAB (UMHOS)	PH LAB (STANDARD UNITS)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
JUL , 1981											
23-23	20.0	1845	--	--	--	--	--	235	8.3	214	5370
23...	--	1923	71	--	--	--	--	--	--	--	--
23...	--	1925	66	--	--	--	--	--	--	--	--
23...	--	1926	60	--	--	--	--	--	--	--	--
25-25	21.0	105	--	--	--	--	--	226	8.1	242	4020
25...	--	0805	111	--	--	--	--	--	--	--	--
25...	--	0907	67	17.0	206	7.3	8.0	--	--	--	--
25...	--	1105	18	18.0	319	7.3	7.0	319	--	--	--
AUG											
11...	--	0855	--	--	--	--	--	1810	7.5	--	--
OCT											
05-05	22.0	--	--	--	--	--	--	--	--	--	--
05...	--	0430	10	--	--	--	--	--	--	--	--
05...	--	0455	9.5	10.5	164	--	8.4	--	--	--	--
05...	--	0630	3.6	--	--	--	--	--	--	--	--
05...	--	0635	3.6	10.5	227	8.0	7.9	--	--	--	--
05...	--	0830	2.0	--	--	--	--	--	--	--	--
DEC											
20...	--	--	--	--	--	--	--	2340	7.3	--	--
20...	--	1330	.85	--	--	--	--	--	--	--	--
20-20	23.0	1330	--	--	--	--	--	2310	7.6	1460	2010
20...	--	1332	.90	--	--	--	--	--	--	--	--
20...	--	1334	1.5	.5	2190	7.0	8.8	--	--	--	--
20...	--	1540	5.4	--	--	--	--	--	--	--	--
20...	--	1545	5.4	.5	2300	7.8	8.9	--	--	--	--
20...	--	1810	.56	--	--	--	--	--	--	--	--
20...	--	1814	.53	.0	2300	7.4	8.8	--	--	--	--
MAR , 1982											
07-07	24.0	--	--	--	--	--	--	--	--	--	--
07...	--	1040	.10	1.0	2770	6.7	--	--	--	--	--
07...	--	1335	.20	.5	2760	7.1	--	--	--	--	--
07...	--	1635	1.1	.5	3220	7.6	--	--	--	--	2390
07...	--	1955	.30	.5	3190	7.4	--	--	--	--	--
07...	--	2315	.10	.5	3290	7.4	--	--	--	--	2160
08...	--	1040	--	--	--	--	--	--	--	--	--
08...	--	1335	--	--	--	--	--	--	--	--	--
08...	--	1635	--	--	--	--	--	--	--	--	--
08...	--	1955	--	--	--	--	--	--	--	--	--
08...	--	2315	--	--	--	--	--	--	--	--	--
09-10	25.0	--	--	--	--	--	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	OXYGEN DEMAND, BIOCHEM ULT. CARBON-ACEOUS (MG/L)
JUL , 1981											
23-23	4300	360	1400	--	--	--	--	--	260	17	29
23...	--	--	--	5310	81	59	45	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
25-25	3300	255	1200	--	--	--	--	--	150	5.0	12
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
AUG											
11...	4	<4	3.2	--	--	--	--	27	--	--	--
OCT											
05-05	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
DEC											
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20-20	520	115	450	--	--	--	--	--	270	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
MAR , 1982											
07-07	--	--	--	--	--	--	--	--	--	--	--
07...	25	6	22	--	--	--	--	--	--	--	--
07...	269	50	270	--	--	--	--	--	--	--	--
07...	355	50	350	--	--	--	--	--	--	--	--
07...	250	43	270	--	--	--	--	--	--	--	--
07...	46	12	80	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
09-10	--	--	--	--	--	--	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L)	CARBON, ORGANIC TOTAL (MG/L AS C)	CALCIUM DISSOLVED (MG/L AS CA)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
JUL , 1981											
23-23	6.1	.64	.210	.620	3.30	.070	--	--	--	450	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	5	--	--	--	--
23...	--	--	--	--	--	--	--	77	--	--	--
25-25	5.8	.45	.140	.380	3.13	.050	--	--	--	250	--
25...	--	--	--	--	--	--	6	14	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
AUG											
11...	--	--	--	--	--	--	--	--	--	--	--
OCT											
05-05	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
DEC											
20...	--	--	--	--	--	--	--	--	96	--	29
20...	--	--	--	--	--	--	--	--	--	--	--
20-20	2.8	2.0	.380	--	.560	.110	--	--	--	180	--
20...	--	--	--	--	--	--	7	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
MAR , 1982											
07-07	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
09-10	--	--	--	--	--	--	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML)
JUL , 1981											
23-23	28	6.0	--	--	--	67	37	3.5	660	<10	27000
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
25-25	23	4.4	--	--	--	56	22	3.6	260	<10	37000
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
AUG											
11...	--	81	--	--	--	--	--	38	--	--	K4000
OCT											
05-05	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
DEC											
20...	--	--	290	9.3	--	--	270	520	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20-20	36	350	--	--	12	92	290	540	730	--	5300
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
MAR , 1982											
07-07	--	--	--	--	--	--	--	--	--	--	--
07...	--	230	--	--	--	--	--	290	--	--	--
07...	--	300	--	--	--	--	--	470	--	--	--
07...	--	460	--	--	--	--	--	800	--	--	--
07...	--	490	--	--	--	--	--	850	--	--	--
07...	--	530	--	--	--	--	--	770	--	--	--
08...	--	--	230	--	--	--	--	--	--	--	--
08...	--	--	300	--	--	--	--	--	--	--	--
08...	--	--	460	--	--	--	--	--	--	--	--
08...	--	--	490	--	--	--	--	--	--	--	--
08...	--	--	530	--	--	--	--	--	--	--	--
09-10	--	--	--	--	--	--	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)
MAR , 1982											
09...	--	0925	.05	1.0	2930	6.9	9.2	--	--	--	--
09...	--	1255	12	.5	1710	8.0	12.5	--	--	--	2920
09...	--	1605	7.7	1.5	660	7.7	12.2	--	--	--	--
09...	--	1855	1.2	1.0	840	7.6	11.9	--	--	--	1010
APR											
28...	--	1025	.02	--	--	--	--	--	--	--	--
28...	--	1035	.02	9.5	2720	6.8	11.8	2740	7.7	2450	2520
MAY											
10-10	26.0	515	--	--	--	--	--	327	7.8	--	--
10...	--	0515	23	--	--	--	--	911	7.4	650,	636
10...	--	0520	44	--	--	--	--	658	7.3	458	10300
10...	--	0550	42	12.0	274	7.8	9.8	--	--	--	--
10...	--	0620	52	--	--	--	--	291	7.3	288	3490
10...	--	0720	81	--	--	--	--	229	7.7	136	2980
10...	--	0810	54	--	--	--	--	--	--	--	--
10...	--	0820	39	--	--	--	--	261	7.5	165	2570
10...	--	0850	15	--	--	--	--	331	7.4	208	1890
10...	--	0905	10	--	--	--	--	--	--	--	--
10...	--	0925	7.4	--	--	--	--	397	7.4	253	1360
13-14	27.0	--	--	--	--	--	--	--	--	--	--
17-17	28.0	1540	--	--	--	--	--	--	--	--	--
19-20	29.0	2000	--	--	--	--	--	353	7.8	252	1600
19...	--	2030	106	--	--	--	--	400	--	--	--
19...	--	2035	97	16.0	239	6.9	8.1	--	--	--	--
19...	--	2315	30	--	--	--	--	400	--	--	--
20...	--	0835	55	--	--	--	--	340	--	--	--
20...	--	0845	56	12.0	279	7.5	8.3	--	--	--	--
20...	--	1215	27	--	--	--	--	400	--	--	--
20...	--	1220	--	--	--	--	--	--	--	--	--
20...	--	1225	24	12.5	401	7.4	8.0	--	--	--	--
28-28	30.0	--	--	--	--	--	--	--	--	--	--
JUN											
15-15	31.0	100	--	--	--	--	--	299	7.8	237	1890
15...	--	0830	.80	16.0	816	7.3	8.2	--	--	--	--
16-17	32.0	--	--	--	--	--	--	--	--	--	--
16-16	--	1350	--	--	--	--	--	286	7.9	283	4180
16...	--	1640	23	--	--	--	--	410	--	--	--
16...	--	1645	18	--	--	--	--	--	--	--	--
16...	--	1655	12	22.0	282	7.5	7.3	--	--	--	--
16...	--	1835	138	--	--	--	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	OXYGEN DEMAND, BIOCHEM ULT. CARBON-ACEOUS (MG/L)
MAR , 1982											
09...	15	<4	6.0	--	--	--	--	--	--	--	--
09...	1510	164	800	--	--	--	--	--	--	--	--
09...	981	108	600	--	--	--	--	--	--	--	--
09...	390	56	370	--	--	--	--	--	--	--	--
APR											
28...	--	--	--	--	--	--	--	--	--	--	--
28...	15	<4	6.8	7	--	--	--	19	--	1.8	--
MAY											
10-10	3630	310	1000	--	--	--	--	--	250	14	36
10...	7710	--	--	--	--	--	--	--	--	--	--
10...	10500	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	4080	80	61	57	--	--	--	--
10...	4400	--	--	--	--	--	--	--	--	--	--
10...	1950	--	--	3870	77	62	52	--	--	--	--
10...	--	--	--	2610	76	65	61	--	--	--	--
10...	1820	--	--	--	--	--	--	--	--	--	--
10...	1620	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	1140	88	71	62	--	--	--	--
10...	920	--	--	--	--	--	--	--	--	--	--
13-14	--	--	--	--	--	--	--	--	--	--	--
17-17	--	--	--	--	--	--	--	--	--	--	--
19-20	1320	116	500	--	--	--	--	--	87	5.1	12
19...	--	--	--	5380	75	57	50	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	802	82	71	67	--	--	--	--
20...	--	--	--	1090	72	62	57	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	829	76	65	60	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
28-28	--	--	--	--	--	--	--	--	--	--	--
JUN											
15-15	1640	142	650	--	--	--	--	--	140	12	21
15...	--	--	--	--	--	--	--	--	--	--	--
16-17	--	--	--	--	--	--	--	--	--	--	--
16-16	3920	315	1300	--	--	--	--	--	250	22	38
16...	--	--	--	1460	91	80	68	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	6020	75	56	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	NITRO-GEN,AM-MONIA + URGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ONGANIC DIS. (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	OIL AND GREASE, TOTAL RECOV. GRAVI-METRIC (MG/L)	CARBON, ORGANIC TOTAL (MG/L AS C)
MAR , 1982											
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
APR											
28...	--	--	--	--	--	--	--	--	--	--	6.7
28...	.71	.44	--	.330	--	.540	.030	.010	--	10	--
MAY											
10-10	--	--	--	--	--	--	--	--	--	12	--
10...	8.7	2.1	.500	.300	.160	.860	3.00	.070	.06	--	--
10...	7.3	2.2	.450	.370	.750	.820	2.00	.080	.09	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	3.7	1.3	.370	.190	.570	.600	1.00	.090	.12	--	--
10...	2.6	.83	.310	.190	.420	.460	.800	.090	.15	--	--
10...	--	--	--	--	--	--	--	--	--	--	34
10...	3.4	1.1	.280	.180	.430	.440	.810	.100	.15	--	--
10...	2.4	.87	.260	.190	.510	.510	.600	.110	.18	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	2.8	.89	.260	.200	.550	.570	.470	.120	.21	--	--
13-14	--	--	--	--	--	--	--	--	--	--	--
17-17	--	--	--	--	--	--	--	--	--	--	--
19-20	1.7	.52	--	.130	--	.410	1.00	.090	--	3	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	16
20...	--	--	--	--	--	--	--	--	--	--	--
26-28	--	--	--	--	--	--	--	--	--	--	--
JUN											
15-15	1.8	.14	--	.130	--	.400	1.06	.060	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
16-17	--	--	--	--	--	--	--	--	--	--	--
16-16	4.9	.35	--	.150	--	.340	2.57	.070	--	4	--
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	44
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
MAR , 1982										
09...	--	--	--	280	--	--	--	400	--	--
09...	--	--	--	290	--	--	--	460	--	--
09...	--	--	--	83	--	--	--	110	--	--
09...	--	--	--	87	--	--	--	120	--	--
APR										
28...	--	--	--	--	--	--	--	--	--	--
28...	330	140	150	--	12	220	1400	82	<10	2800
MAY										
10-10	230	23	14	--	16	70	87	8.6	--	K4000
10...	--	--	--	--	--	--	--	--	82	--
10...	--	--	--	--	--	--	--	--	110	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	440	--
10...	--	--	--	--	--	--	--	--	67	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	210	--
10...	--	--	--	--	--	--	--	--	91	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	97	--
13-14	--	--	--	--	--	--	--	--	--	--
17-17	--	--	--	--	--	--	--	--	--	--
19-20	100	15	8.1	--	9.0	70	99	6.6	160	21000
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
28-28	--	--	--	--	--	--	--	--	--	--
JUN										
15-15	200	19	8.7	--	9.4	59	86	5.9	200	K20000
15...	--	--	--	--	--	--	--	--	--	--
16-17	--	--	--	--	--	--	--	--	--	--
16-16	540	26	8.2	--	14	70	71	5.5	440	36000
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	STORM EVENT SERIAL NUMBER	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	OXYGEN, DIS-SOLVED (MG/L)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH LAB (STAND-ARD UNITS)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
JUN , 1982										
16...	--	1945	18	--	--	--	--	410	--	--
23...	--	1220	--	--	--	--	--	3090	7.7	2880
23...	--	1225	.05	24.0	2930	6.9	8.7	--	--	--
JUL										
08-08	33.0	1460	--	--	--	--	--	505	7.7	379

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)
JUN , 1982										
16...	--	--	--	--	1020	89	78	70	--	--
23...	3010	4	<4	2.1	--	--	--	--	20	--
23...	--	--	--	--	4	--	--	--	--	--
JUL										
08-08	2690	2350	221	700	--	--	--	--	--	260

200

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	BOD OXYGEN DEMAND, BIOCHEM CARBON. 5 DAY (MG/L)	OXYGEN DEMAND, BIOCHEM ULT. CARBON-ACEOUS (MG/L)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JUN , 1982									
16...	--	--	--	--	--	--	--	--	--
23...	1.0	5.0	1.2	1.1	1.10	.820	.040	.020	--
23...	--	--	--	--	--	--	--	--	7.4
JUL									
08-08	48	78	4.4	.76	.210	.500	1.98	.100	--

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
JUN , 1982									
16...	--	--	--	--	--	--	--	--	--
23...	430	250	160	13	193	1900	74	<10	2800
23...	--	--	--	--	--	--	--	--	--
JUL									
08-08	370	34	15	13	78	180	9.8	490	38000

Table 17. -- Laboratory analysis of priority pollutant samples collected at four streamflow-monitoring stations in Rapid City, on October 15, 1980, October 5, 1981, and May 17, 1982.

06012500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	ARSENIC TOTAL (UG/L AS AS)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	ANTI-MONY, TOTAL (UG/L AS SB)	SELE-NIUM, TOTAL (UG/L AS SE)	THAL-LIUM, TOTAL (UG/L AS TL)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)
OCT , 1980 05...	--	--	<0	<1	--	--	--	--	--	--	--	--
OCT , 1981 05...	<1	<10	<0	<0	3	<1	<10	<1	<1	<10	<1	<0
MAY , 1982 17-17	--	--	--	--	--	--	<10	--	<10	--	--	--

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	ALDRIN, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	P,P' DDT, TOTAL (UG/L)	P,P' DDE, TOTAL (UG/L)	P,P' DDD, TOTAL (UG/L)	ENDO-SULFAN ALPHA TOTAL (UG/L)	ENDO-SULFAN BETA TOTAL (UG.L)	ENDO-SULFAN SULFATE TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN ALDE-HYDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)
OCT , 1980											
15...	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
OCT , 1981											
05...	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
MAY , 1982											
17-17	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

205

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	ALPHA BHC TOTAL (UG/L)	BETA BENZENE HEXA-CHLOR-IDE TOTAL (UG/L)	DELTA BENZENE HEXA-CHLOR-IDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	AROCLOR 1242 PCB TOTAL (UG/L)	AROCLOR 1254 PCB TOTAL (UG/L)	AROCLOR 1221 PCB TOTAL (UG/L)	AROCLOR 1232 PCB TOTAL (UG/L)	AROCLOR 1248 PCB TOTAL (UG/L)	AROCLOR 1260 PCB TOTAL (UG/L)
OCT , 1980											
15...	<5.0	<5.0	<5.0	<5.0	<5.00	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
OCT , 1981											
05...	<5.0	<5.0	<5.0	<5.0	<5.00	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MAY , 1982											
17-17	<5.0	<5.0	<5.0	<5.0	<5.00	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	AROCLOR 1016 PCB TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	2,4,6-TRI-CHLORO-PHENOL TOTAL (UG/L)	PARA-CHLORO-META CRESOL TOTAL (UG/L)	2-CHLORO-PHENOL TOTAL (UG/L)	2,4-DI-CHLORO-PHENOL TOTAL (UG/L)	2,4-DI-METHYL-PHENOL TOTAL (UG/L)	2-NITRO-PHENOL TOTAL (UG/L)	4-NITRO-PHENOL TOTAL (UG/L)	2,4,-DI-NITRO-PHENOL TOTAL (UG/L)	4,6-DINITRO-ORTHO-CRESOL TOTAL (UG/L)
OCT , 1980											
15...	<5.0	<5	<25.0	<25.0	<25.0	<25.0	--	<25.0	<25.0	<250	<250
OCT , 1981											
05...	<5.0	<5	<25.0	<25.0	<25.0	<25.0	--	<25.0	<25.0	<250	<250
MAY , 1982											
17-17	<5.0	<5	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<250	<250

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	PENTA-CHLORO-PHENOL TOTAL (UG/L)	PHENOL (C6H-5OH) TOTAL (UG/L)	ACE-NAPHTH-ENE TOTAL (UG/L)	1,2,4-TRI-CHLORO-BENZENE TOTAL (UG/L)	HEXA-CHLORO-BENZENE TOTAL (UG/L)	HEXA-CHLORO-ETHANE TOTAL (UG/L)	BIS 2-CHLORO-ETHYL ETHER TOTAL (UG/L)	2-CHLORO-NAPH-THALENE TOTAL (UG/L)	1,2-DI-CHLORO-BENZENE TOTAL (UG/L)	1,3-DI-CHLORO-BENZENE TOTAL (UG/L)	1,4-DI-CHLORO-BENZENE TOTAL (UG/L)
OCT , 1980											
15...	<25.0	<25.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
OCT , 1981											
05...	<25.0	<25.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
MAY , 1982											
17-17	<25.0	<25.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	2,4-DI-NITRO-TOLUENE TOTAL (UG/L)	2,6-DI-NITRO-TOLUENE TOTAL (UG/L)	FLUOR-ANTHENE TOTAL (UG/L)	4-CHLORO-PHENYL PHENYL ETHER TOTAL (UG/L)	4-BROMO-PHENYL PHENYL ETHER TOTAL (UG/L)	BIS (2-CHLORO-ISO-PROPYL) ETHER TOTAL (UG/L)	BIS (2-CHLORO-ETHOXY) METHANE TOTAL (UG/L)	HEXA-CHLORO-BUT-ADIENE TOTAL (UG/L)	ISO-PHORONE TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	NITRO-BENZENE TOTAL (UG/L)
OCT , 1980 15...	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10.0
OCT , 1981 05...	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10.0
MAY , 1982 17-17	<10.0	<10.0	<10.0	<10.0	--	<10.0	<10.0	<10.0	<10.0	--	<10.0

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	N-NITRO-SODI-N-PROPYL-AMINE TOTAL (UG/L)	BIS(2-ETHYL HEXYL) PHTHAL-ATE TOTAL (UG/L)	N-BUTYL BENZYL PHTHAL-ATE TOTAL (UG/L)	DI-N-OCTYL PHTHAL-ATE TOTAL (UG/L)	DIETHYL PHTHAL-ATE TOTAL (UG/L)	DI-METHYL PHTHAL-ATE TOTAL (UG/L)	BENZO A ANTHRAC ENE1,2-BENZANT HRACENE TOTAL (UG/L)	BENZO-A-PYRENE TOTAL (UG/L)	BENZO B FLUOR-AN-THENE TOTAL (UG/L)	BENZO K FLUOR-AN-THENE TOTAL (UG/L)
OCT , 1980										
15...	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
OCT , 1981										
05...	<10.0	<10.0	<10.0	--	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
MAY , 1982										
17-17	<10.0	--	--	<10.0	--	<10.0	<10.0	<10.0	<10.0	<10.0

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	CHRY-SENE TOTAL (UG/L)	ACE-NAPHTH-YLENE TOTAL (UG/L)	ANTHRA-CENE TOTAL (UG/L)	BENZOGH I PERYL ENE1,12 -BENZOP ERYLENE TOTAL (UG/L)	FLUOR-ENE TOTAL (UG/L)	PHENAN-THRENE TOTAL (UG/L)	1,2,5,6 -DIBENZ -ANTHRA -CENE TOTAL (UG/L)	INDENO (1,2,3-CD) PYRENE TOTAL (UG/L)	PYRENE TOTAL (UG/L)	2,3,7,8 TETRACH LORODI-BENZO-P -DIOXIN TOTAL (UG/L)
OCT , 1980										
15...	<10.0	<10.0	<10.0	<25.0	<10.0	<10.0	<25.0	<25.0	<10.0	<5.0
OCT , 1981										
05...	<10.0	<10.0	<10.0	<25.0	<10.0	<10.0	<25.0	<25.0	<10.0	<5.0
MAY , 1982										
17-17	<10.0	<10.0	<10.0	<25.0	<10.0	<10.0	<25.0	<25.0	<10.0	<5.0

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	BENZENE SUSP. (UG/L)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L)	CHLORO-BENZENE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2,2 TETRA-CHLORO-ETHANE TOTAL (UG/L)	CHLORO-ETHANE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)
OCT , 1980										
15...	<10.0	<10	<10	<10	<10	<10	<10	<10	<10	<10
OCT , 1981										
05...	<10.0	<10	<10	<10	<10	<10	<10	<10	<10	<10
MAY , 1982										
17-17	<10.0	--	<10	<10	<10	<10	<10	<10	<10	<10

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	CHLORO-FORM TOTAL (UG/L)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L)	CHLORO-ETHYL-ENE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)	1,3-DI-CHLORO-PROPANE TOTAL (UG/L)	ETHYL-BENZENE TOTAL (UG/L)	METHYL CHLOR-IDE TOTAL (UG/L)	METHYL-BROMIDE TOTAL (UG/L)	BROM-OFORM TOTAL (UG/L)
OCT , 1980									
15...	<10	<10	<10	<10	<10	<10	<10.0	<10	<10
OCT , 1981									
05...	<10	<10	<10	<10	<10	<10	<10.0	<10	<10
MAY , 1982									
17-17	<10	<10	<10	<10	<10	<10	<10.0	<10	<10

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD

WATER QUALITY DATA

DATE	DI-CHLORO-BROMO-METHANE TOTAL (UG/L)	TRI-CHLORO-FLOURO-METHANE TOTAL (UG/L)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	BIS (CHLORO METHYL) ETHER TOTAL (UG/L)
OCT , 1980									
15...	<10	--	<10	<10	<10	<10	<10.0	<10	--
OCT , 1981									
05...	<10	<10	<10	<10	<10	<10	<10.0	<10	--
MAY , 1982									
17-17	<10	<10	<10	<10	<10	--	<10.0	<10	<10.0

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	ANTI- MONY, TOTAL (UG/L AS SB)
OCT , 1980		
15...	--	5
OCT , 1981		
05...	--	<1
MAY , 1982		
17-17	<10	<10

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	ALDRIN, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	P,P' DDT, TOTAL (UG/L)	P,P' DDE, TOTAL (UG/L)	P,P' DDD, TOTAL (UG/L)	ENDO-SULFAN ALPHA TOTAL (UG/L)	ENDO-SULFAN BETA TOTAL (UG.L)	ENDO-SULFAN SULFATE TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN ALDE-HYDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)
OCT , 1980											
15...	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
OCT , 1981											
05...	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
MAY , 1982											
17-17	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	ALPHA BHC TOTAL (UG/L)	BETA BENZENE HEXA-CHLOR-IDE TOTAL (UG/L)	DELTA BENZENE HEXA-CHLOR-IDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	AROCLOR 1242 PCB TOTAL (UG/L)	AROCLOR 1254 PCB TOTAL (UG/L)	AROCLOR 1221 PCB TOTAL (UG/L)	AROCLOR 1232 PCB TOTAL (UG/L)	AROCLOR 1248 PCB TOTAL (UG/L)	AROCLOR 1260 PCB TOTAL (UG/L)
OCT , 1980											
15...	<5.0	<5.0	<5.0	<5.0	<5.00	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
OCT , 1981											
05...	<5.0	<5.0	<5.0	<5.0	<5.00	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MAY , 1982											
17-17	5.0	5.0	5.0	5.0	5.00	5.0	5.0	5.0	5.0	5.0	5.0

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	AROCLOR 1016 PCB TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	2,4,6-TRI-CHLORO-PHENOL TOTAL (UG/L)	PARA-CHLORO-META CRESOL TOTAL (UG/L)	2-CHLORO-PHENOL TOTAL (UG/L)	2,4-DI-CHLORO-PHENOL TOTAL (UG/L)	2,4-DI-METHYL-PHENOL TOTAL (UG/L)	2-NITRO-PHENOL TOTAL (UG/L)	4-NITRO-PHENOL TOTAL (UG/L)	2,4,-DI-NITRO-PHENOL TOTAL (UG/L)	4,6-DINITRO-ORTHO-CRESOL TOTAL (UG/L)
OCT , 1980											
15...	<5.0	<5	<25.0	<25.0	<25.0	<25.0	--	<25.0	<25.0	<250	<250
OCT , 1981											
05...	<5.0	<5	<25.0	<25.0	<25.0	<25.0	--	<25.0	<25.0	<250	<250
MAY , 1982											
17-17	5.0	5	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<250	<250

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06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	PENTA-CHLORO-PHENOL TOTAL (UG/L)	PHENOL (C6H-5OH) TOTAL (UG/L)	ACE-NAPHTH-ENE TOTAL (UG/L)	1,2,4-TRI-CHLORO-BENZENE TOTAL (UG/L)	HEXA-CHLORO-BENZENE TOTAL (UG/L)	HEXA-CHLORO-ETHANE TOTAL (UG/L)	BIS 2-CHLORO-ETHYL ETHER TOTAL (UG/L)	2-CHLORO-NAPH-THALENE TOTAL (UG/L)	1,2-DI-CHLORO-BENZENE TOTAL (UG/L)	1,3-DI-CHLORO-BENZENE TOTAL (UG/L)	1,4-DI-CHLORO-BENZENE TOTAL (UG/L)
OCT , 1980 15...	<25.0	<25.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
OCT , 1981 05...	<25.0	<25.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
MAY , 1982 17-17	<25.0	<25.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	2,4-DI-NITRO-TOLUENE TOTAL (UG/L)	2,6-DI-NITRO-TOLUENE TOTAL (UG/L)	FLUOR-ANTHENE TOTAL (UG/L)	4-CHLORO-PHENYL PHENYL ETHER TOTAL (UG/L)	4-BROMO-PHENYL PHENYL ETHER TOTAL (UG/L)	BIS (2-CHLORO-ISO-PROPYL) ETHER TOTAL (UG/L)	BIS (2-CHLORO-ETHOXY) METHANE TOTAL (UG/L)	HEXA-CHLORO-BUT-ADIENE TOTAL (UG/L)	ISO-PHORONE TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	NITRO-BENZENE TOTAL (UG/L)
OCT , 1980											
15...	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10.0
OCT , 1981											
05...	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10.0
MAY , 1982											
17-17	<10.0	<10.0	<10.0	<10.0	--	<10.0	<10.0	<10.0	<10.0	--	<10.0

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	N-NITROSODI-N-PROPYLAMINE TOTAL (UG/L)	BIS(2-ETHYL HEXYL) PHTHALATE TOTAL (UG/L)	N-BUTYL BENZYL PHTHALATE TOTAL (UG/L)	DI-N-OCTYL PHTHALATE TOTAL (UG/L)	DIETHYL PHTHALATE TOTAL (UG/L)	DI-METHYL PHTHALATE TOTAL (UG/L)	BENZO A ANTHRACENE1,2-BENZANTHRACENE TOTAL (UG/L)	BENZO-A-PYRENE TOTAL (UG/L)	BENZO B FLUOR-ANTHENE TOTAL (UG/L)	BENZO K FLUOR-ANTHENE TOTAL (UG/L)
OCT , 1980										
15...	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
OCT , 1981										
05...	<10.0	<10.0	<10.0	--	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
MAY , 1982										
17-17	<10.0	--	--	<10.0	--	<10.0	<10.0	<10.0	<10.0	<10.0

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	CHRY-SENE TOTAL (UG/L)	ACE-NAPHTH-YLENE TOTAL (UG/L)	ANTHRA-CENE TOTAL (UG/L)	BENZOGH I PERYL ENE1,12 -BENZOP ERYLENE TOTAL (UG/L)	FLUOR-ENE TOTAL (UG/L)	PHENAN-THRENE TOTAL (UG/L)	1,2,5,6 -DIBENZ -ANTHRA -CENE TOTAL (UG/L)	INDENO (1,2,3-CD) PYRENE TOTAL (UG/L)	PYRENE TOTAL (UG/L)	2,3,7,8 TETRACH LORODI-BENZO-P -DIOXIN TOTAL (UG/L)
OCT , 1980										
15...	<10.0	<10.0	<10.0	<25.0	<10.0	<10.0	<25.0	<25.0	<10.0	<5.0
OCT , 1981										
05...	<10.0	<10.0	<10.0	<25.0	<10.0	<10.0	<25.0	<25.0	<10.0	<5.0
MAY , 1982										
17-17	<10.0	<10.0	<10.0	<25.0	<10.0	<10.0	<25.0	<25.0	<10.0	<5.0

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	BENZENE SUSP. (UG/L)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L)	CHLORO-BENZENE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2,2 TETRA-CHLORO-ETHANE TOTAL (UG/L)	CHLORO-ETHANE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)
OCT , 1980										
15...	<10.0	<10	<10	<10	<10	<10	<10	<10	<10	<10
OCT , 1981										
05...	<10.0	<10	<10	<10	<10	<10	<10	<10	<10	<10
MAY , 1982										
17-17	<10.0	<10	<10	<10	<10	<10	<10	<10	<10	<10

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	CHLORO- OFORM TOTAL (UG/L)	1,1-DI- CHLORO- ETHYL- ENE TOTAL (UG/L)	CHLORO- ETHYL- ENE TOTAL (UG/L)	1,2-DI- CHLORO- PROPANE TOTAL (UG/L)	1,3-DI- CHLORO- PROPANE TOTAL (UG/L)	ETHYL- BENZENE TOTAL (UG/L)	METHYL CHLOR- IDE TOTAL (UG/L)	METHYL- BROMIDE TOTAL (UG/L)	BROM- OFORM TOTAL (UG/L)
OCT , 1980 15...	<10	<10	<10	<10	<10	<10	<10.0	<10	<10
OCT , 1981 05...	<10	<10	<10	<10	<10	<10	<10.0	<10	<10
MAY , 1982 17-17	<10	<10	<10	<10	<10	<10	<10.0	<10	<10

06414000 - RAPID CR AT RAPID CITY SD

WATER QUALITY DATA

DATE	DI-CHLORO-BROMO-METHANE TOTAL (UG/L)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	BIS (CHLORO METHYL) ETHER TOTAL (UG/L)
OCT , 1980									
15...	<10	<10	<10	<10	<10	<10	<10.0	<10	--
OCT , 1981									
05...	<10	<10	<10	<10	<10	<10	<10.0	<10	--
MAY , 1982									
17-17	<10	<10	<10	<10	<10	--	<10.0	<10	<10.0

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	ARSENIC TOTAL (UG/L AS AS)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	ANTI-MONY, TOTAL (UG/L AS SB)
OCT , 1980			
15...	--	--	5
OCT , 1981			
05...	<10	--	7
MAY , 1982			
17-17	--	<10	<10

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	ALDRIN, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	P,P' DDT, TOTAL (UG/L)	P,P' DDE, TOTAL (UG/L)	P,P' DDD, TOTAL (UG/L)	ENDO-SULFAN ALPHA TOTAL (UG/L)	ENDO-SULFAN BETA TOTAL (UG.L)	ENDO-SULFAN SULFATE TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN ALDE-HYDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)
OCT , 1980											
15...	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
OCT , 1981											
05...	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
MAY , 1982											
17-17	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

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06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	ALPHA BHC TOTAL (UG/L)	BETA BENZENE HEXA-CHLOR-IDE TOTAL (UG/L)	DELTA BENZENE HEXA-CHLOR-IDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	AROCLOR 1242 PCB TOTAL (UG/L)	AROCLOR 1254 PCB TOTAL (UG/L)	AROCLOR 1221 PCB TOTAL (UG/L)	AROCLOR 1232 PCB TOTAL (UG/L)	AROCLOR 1248 PCB TOTAL (UG/L)	AROCLOR 1260 PCB TOTAL (UG/L)
OCT , 1980 15...	<5.0	<5.0	<5.0	<5.0	<5.00	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
OCT , 1981 05...	<5.0	<5.0	<5.0	<5.0	<5.00	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MAY , 1982 17-17	<5.0	<5.0	<5.0	<5.0	<5.00	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	AROCLOR 1016 PCB TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	2,4,6-TRI-CHLORO-PHENOL TOTAL (UG/L)	PARA-CHLORO-META CRESOL TOTAL (UG/L)	2-CHLORO-PHENOL TOTAL (UG/L)	2,4-DI-CHLORO-PHENOL TOTAL (UG/L)	2,4-DI-METHYL-PHENOL TOTAL (UG/L)	2-NITRO-PHENOL TOTAL (UG/L)	4-NITRO-PHENOL TOTAL (UG/L)	2,4,-DI-NITRO-PHENOL TOTAL (UG/L)	4,6-DINITRO-ORTHO-CRESOL TOTAL (UG/L)
OCT , 1980											
15...	<5.0	<5	<25.0	<25.0	<25.0	<25.0	--	<25.0	<25.0	<250	<250
OCT , 1981											
05...	<5.0	<5	<25.0	<25.0	<25.0	<25.0	--	<25.0	<25.0	<250	<250
MAY , 1982											
17-17	<5.0	<5	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<250	<250

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	PENTA-CHLORO-PHENOL TOTAL (UG/L)	PHENOL (C6H-5OH) TOTAL (UG/L)	ACE-NAPHTH-ENE TOTAL (UG/L)	1,2,4-TRI-CHLORO-BENZENE TOTAL (UG/L)	HEXA-CHLORO-BENZENE TOTAL (UG/L)	HEXA-CHLORO-ETHANE TOTAL (UG/L)	BIS 2-CHLORO-ETHYL ETHER TOTAL (UG/L)	2-CHLORO-NAPH-THALENE TOTAL (UG/L)	1,2-DI-CHLORO-BENZENE TOTAL (UG/L)	1,3-DI-CHLORO-BENZENE TOTAL (UG/L)	1,4-DI-CHLORO-BENZENE TOTAL (UG/L)
OCT , 1980 15...	<25.0	<25.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
OCT , 1981 05...	<25.0	<25.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
MAY , 1982 17-17	<25.0	<25.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	2,4-DI-NITRO-TOLUENE TOTAL (UG/L)	2,6-DI-NITRO-TOLUENE TOTAL (UG/L)	FLUOR-ANTHENE TOTAL (UG/L)	4-CHLORO-PHENYL PHENYL ETHER TOTAL (UG/L)	4-BROMO-PHENYL PHENYL ETHER TOTAL (UG/L)	BIS (2-CHLORO-ISO-PROPYL) ETHER TOTAL (UG/L)	BIS (2-CHLORO-ETHOXY) METHANE TOTAL (UG/L)	HEXA-CHLORO-BUT-ADIENE TOTAL (UG/L)	ISO-PHORONE TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	NITRO-BENZENE TOTAL (UG/L)
OCT , 1980											
15...	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10.0
OCT , 1981											
05...	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10.0
MAY , 1982											
17-17	<10.0	<10.0	<10.0	<10.0	--	<10.0	<10.0	<10.0	<10.0	--	<10.0

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	N-NITRO-SODI-N-PROPYL-AMINE TOTAL (UG/L)	BIS(2-ETHYL HEXYL) PHTHAL-ATE TOTAL (UG/L)	N-BUTYL BENZYL PHTHAL-ATE TOTAL (UG/L)	DI-N-BUTYL PHTHAL-ATE TOTAL (UG/L)	DI-N-OCTYL PHTHAL-ATE TOTAL (UG/L)	DIETHYL PHTHAL-ATE TOTAL (UG/L)	DI-METHYL PHTHAL-ATE TOTAL (UG/L)	BENZO A ANTHRAC ENE1,2-BENZANT HRACENE TOTAL (UG/L)	BENZO-A-PYRENE TOTAL (UG/L)	BENZO B FLUOR-AN-THENE TOTAL (UG/L)	BENZO K FLUOR-AN-THENE TOTAL (UG/L)
OCT , 1980 15...	<10.0	<10.0	<10.0	--	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
OCT , 1981 05...	<10.0	<10.0	<10.0	--	--	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
MAY , 1982 17-17	<10.0	--	<10.0	<10.0	<10.0	--	<10.0	<10.0	<10.0	<10.0	<10.0

06414000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	CHRY-SENE TOTAL (UG/L)	ACE-NAPHTH-YLENE TOTAL (UG/L)	ANTHRA-CENE TOTAL (UG/L)	BENZOGHI PERYLENE1,12-BENZOPERYLENE TOTAL (UG/L)	FLUOR-ENE TOTAL (UG/L)	PHENAN-THRENE TOTAL (UG/L)	1,2,5,6-DIBENZ-ANTHRA-CENE TOTAL (UG/L)	INDENO (1,2,3-CD) PYRENE TOTAL (UG/L)	PYRENE TOTAL (UG/L)	2,3,7,8 TETRACHLORODI-BENZO-P-DIOXIN TOTAL (UG/L)
OCT , 1980										
15...	<10.0	<10.0	<10.0	<25.0	<10.0	<10.0	<25.0	<25.0	<10.0	<5.0
OCT , 1981										
05...	<10.0	<10.0	<10.0	<25.0	<10.0	<10.0	<25.0	<25.0	<10.0	<5.0
MAY , 1982										
17-17	<10.0	<10.0	<10.0	<25.0	<10.0	<10.0	<25.0	<25.0	<10.0	<5.0

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	BENZENE SUSP. (UG/L)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L)	CHLORO-BENZENE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2,2 TETRA-CHLORO-ETHANE TOTAL (UG/L)	CHLORO-ETHANE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)
OCT , 1980										
15...	<10.0	<10	<10	<10	<10	<10	<10	<10	<10	<10
OCT , 1981										
05...	<10.0	<10	<10	<10	<10	<10	<10	<10	<10	<10
MAY , 1982										
17-17	<10.0	<10	<10	<10	<10	<10	<10	<10	<10	<10

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	CHLORO-UFORM TOTAL (UG/L)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L)	CHLORO-ETHYL-ENE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)	1,3-DI-CHLORO-PROPANE TOTAL (UG/L)	ETHYL-BENZENE TOTAL (UG/L)	METHYL CHLOR-IDE TOTAL (UG/L)	METHYL-BROMIDE TOTAL (UG/L)	BROM-OFORM TOTAL (UG/L)
OCT , 1980									
15...	<10	<10	<10	<10	<10	<10	<10.0	<10	<10
OCT , 1981									
05...	<10	<10	<10	<10	<10	<10	<10.0	<10	<10
MAY , 1982									
17-17	<10	<10	<10	<10	<10	<10	<10.0	<10	<10

06416000 - RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY SD

WATER QUALITY DATA

DATE	DICHLOROBROMOMETHANE TOTAL (UG/L)	TRICHLOROFLOUROMETHANE TOTAL (UG/L)	DICHLORODIFLUOROMETHANE TOTAL (UG/L)	CHLORODIBROMOMETHANE TOTAL (UG/L)	TETRACHLOROETHYLENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	TRICHLOROETHYLENE TOTAL (UG/L)	VINYL CHLORIDE TOTAL (UG/L)	BIS (CHLORO METHYL) ETHER TOTAL (UG/L)
OCT , 1980 15...	<10	<10	<10	<10	<10	<10	<10.0	<10	--
OCT , 1981 05...	<10	<10	<10	<10	<10	<10	<10.0	<10	--
MAY , 1982 17-17	<10	<10	<10	<10	<10	--	<10.0	<10	<10.0

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	ANTI-MONY, TOTAL (UG/L AS SB)
OCT , 1980 15...	--	5
OCT , 1981 05...	--	10
MAY , 1982 17-17	<10	23

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	ALDRIN, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	P,P' DDT, TOTAL (UG/L)	P,P' DDE, TOTAL (UG/L)	P,P' DDD, TOTAL (UG/L)	ENDO-SULFAN ALPHA TOTAL (UG/L)	ENDO-SULFAN BETA TOTAL (UG.L)	ENDO-SULFAN SULFATE TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN ALDE-HYDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)
OCT , 1980											
15...	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
OCT , 1981											
05...	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
MAY , 1982											
17-17	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	ALPHA BHC TOTAL (UG/L)	BETA BENZENE HEXA-CHLOR-IDE TOTAL (UG/L)	DELTA BENZENE HEXA-CHLOR-IDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	AROCLOR 1242 PCB TOTAL (UG/L)	AROCLOR 1254 PCB TOTAL (UG/L)	AROCLOR 1221 PCB TOTAL (UG/L)	AROCLOR 1232 PCB TOTAL (UG/L)	AROCLOR 1248 PCB TOTAL (UG/L)	AROCLOR 1260 PCB TOTAL (UG/L)
OCT , 1980 15...	<5.0	<5.0	<5.0	<5.0	<5.00	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
OCT , 1981 05...	<5.0	<5.0	<5.0	<5.0	<5.00	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MAY , 1982 17-17	<5.0	<5.0	<5.0	<5.0	<5.00	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	AROCLOR 1016 PCB TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	2,4,6-TRI-CHLORO-PHENOL TOTAL (UG/L)	PARA-CHLORO-META CRESOL TOTAL (UG/L)	2-CHLORO-PHENOL TOTAL (UG/L)	2,4-DI-CHLORO-PHENOL TOTAL (UG/L)	2,4-DI-METHYL-PHENOL TOTAL (UG/L)	2-NITRO-PHENOL TOTAL (UG/L)	4-NITRO-PHENOL TOTAL (UG/L)	2,4,-DI-NITRO-PHENOL TOTAL (UG/L)	4,6-DINITRO-ORTHO-CRESOL TOTAL (UG/L)
OCT , 1980											
15...	<5.0	<5	<25.0	<25.0	<25.0	<25.0	--	<25.0	<25.0	<250	<250
OCT , 1981											
05...	<5.0	<5	<25.0	<25.0	<25.0	<25.0	--	<25.0	<25.0	<250	<250
MAY , 1982											
17-17	<5.0	<5	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<250	<250

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	PENTA-CHLORO-PHENOL TOTAL (UG/L)	PHENOL (C6H-5OH) TOTAL (UG/L)	ACE-NAPHTH-ENE TOTAL (UG/L)	1,2,4-TRI-CHLORO-BENZENE TOTAL (UG/L)	HEXA-CHLORO-BENZENE TOTAL (UG/L)	HEXA-CHLORO-ETHANE TOTAL (UG/L)	BIS 2-CHLORO-ETHYL ETHER TOTAL (UG/L)	2-CHLORO-NAPH-THALENE TOTAL (UG/L)	1,2-DI-CHLORO-BENZENE TOTAL (UG/L)	1,3-DI-CHLORO-BENZENE TOTAL (UG/L)	1,4-DI-CHLORO-BENZENE TOTAL (UG/L)
OCT , 1980											
15...	<25.0	<25.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
OCT , 1981											
05...	<25.0	<25.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
MAY , 1982											
17-17	<25.0	<25.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	2,4-DI-NITRO-TOLUENE TOTAL (UG/L)	2,6-DI-NITRO-TOLUENE TOTAL (UG/L)	FLUOR-ANTHENE TOTAL (UG/L)	4-CHLORO-PHENYL PHENYL ETHER TOTAL (UG/L)	4-BROMO-PHENYL PHENYL ETHER TOTAL (UG/L)	BIS (2-CHLORO-ISO-PROPYL) ETHER TOTAL (UG/L)	BIS (2-CHLORO-ETHOXY) METHANE TOTAL (UG/L)	HEXA-CHLORO-BUT-ADIENE TOTAL (UG/L)	ISO-PHORONE TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	NITRO-BENZENE TOTAL (UG/L)
OCT , 1980 15...	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10.0
OCT , 1981 05...	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10.0
MAY , 1982 17-17	<10.0	<10.0	<10.0	<10.0	--	<10.0	<10.0	<10.0	<10.0	--	<10.0

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	N-NITROSODI-N-PROPYLAMINE TOTAL (UG/L)	BIS(2-ETHYLHEXYL) PHTHALATE TOTAL (UG/L)	N-BUTYL BENZYL PHTHALATE TOTAL (UG/L)	DI-N-BUTYL PHTHALATE TOTAL (UG/L)	DI-N-OCTYL PHTHALATE TOTAL (UG/L)	DIETHYL PHTHALATE TOTAL (UG/L)	DIMETHYL PHTHALATE TOTAL (UG/L)	BENZO A ANTHRACENE1,2-BENZANTHRACENE TOTAL (UG/L)	BENZO-A-PYRENE TOTAL (UG/L)	BENZO B FLUORANTHENE TOTAL (UG/L)	BENZO K FLUORANTHENE TOTAL (UG/L)
OCT , 1980											
15...	<10.0	<10.0	<10.0	--	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
OCT , 1981											
05...	<10.0	<10.0	<10.0	--	--	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
MAY , 1982											
17-17	<10.0	--	<10.0	<10.0	<10.0	--	<10.0	<10.0	<10.0	<10.0	<10.0

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	CHRY-SENE TOTAL (UG/L)	ACE-NAPHTH-YLENE TOTAL (UG/L)	ANTHRA-CENE TOTAL (UG/L)	BENZOGHI PERYLENE1,12 -BENZOPERYLENE TOTAL (UG/L)	FLUOR-ENE TOTAL (UG/L)	PHENAN-THRENE TOTAL (UG/L)	1,2,5,6 -DIBENZ -ANTHRA -CENE TOTAL (UG/L)	INDENO (1,2,3-CD) PYRENE TOTAL (UG/L)	PYRENE TOTAL (UG/L)	2,3,7,8 TETRACHLORODI-BENZO-P -DIOXIN TOTAL (UG/L)
OCT , 1980 15...	<10.0	<10.0	<10.0	<25.0	<10.0	<10.0	<25.0	<25.0	<10.0	<5.0
OCT , 1981 05...	<10.0	<10.0	<10.0	<25.0	<10.0	<10.0	<25.0	<25.0	<10.0	<5.0
MAY , 1982 17-17	<10.0	<10.0	<10.0	<25.0	<10.0	<10.0	<25.0	<25.0	<10.0	<5.0

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	BENZENE SUSP. (UG/L)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L)	CHLORO-BENZENE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2,2 TETRA-CHLORO-ETHANE TOTAL (UG/L)	CHLORO-ETHANE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)
OCT , 1980										
15...	<10.0	<10	<10	<10	<10	<10	<10	<10	<10	<10
OCT , 1981										
05...	<10.0	<10	<10	<10	<10	<10	<10	<10	<10	<10
MAY , 1982										
17-17	<10.0	<10	<10	<10	<10	<10	<10	<10	<10	<10

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	CHLORO-OFORM TOTAL (UG/L)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L)	CHLORO-ETHYL-ENE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)	1,3-DI-CHLORO-PROPANE TOTAL (UG/L)	ETHYL-BENZENE TOTAL (UG/L)	METHYL CHLOR-IDE TOTAL (UG/L)	METHYL-BROMIDE TOTAL (UG/L)	BROM-OFORM TOTAL (UG/L)
OCT , 1980									
15...	<10	<10	<10	<10	<10	<10	<10.0	<10	<10
OCT , 1981									
05...	<10	<10	<10	<10	<10	<10	<10.0	<10	<10
MAY , 1982									
17-17	<10	<10	<10	<10	<10	<10	<10.0	<10	<10

06416300 - MEADE STREET DRAIN AT RAPID CITY SD

WATER QUALITY DATA

DATE	DI-CHLORO-BROMO-METHANE TOTAL (UG/L)	TRI-CHLORO-FLOURO-METHANE TOTAL (UG/L)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	BIS (CHLORO METHYL) ETHER TOTAL (UG/L)
OCT , 1980									
15...	<10	<10	<10	<10	<10	<10	<10.0	<10	--
OCT , 1981									
05...	<10	<10	<10	<10	<10	<10	<10.0	<10	--
MAY , 1982									
17-17	<10	<10	<10	<10	<10	--	--	<10	<10.0